THE

ECLECTIC REPERTORY

AND

ANALYTICAL REVIEW.

VOL. IX. JANUARY, 1819. No. I.

SELECTED PAPERS.

Reflections on Securing in a Ligature the Arteria Innominata. To which is added, a Case in which this Artery was tied by a Surgical Operation. By VALENTINE MOTT, M. D. Professor of Surgery in the University of New York, &c. Pamphlet, 1818.

SINCE the publication of Allan Burns's invaluable work on the Surgical Anatomy of the Head and Neck, I have been in the habit of showing in my surgical lectures the practicability of securing in a ligature the Arteria Innominata; and I have had no hesitation in remarking that it was my opinion, that this artery might be taken up for some condition of aneurisms; and that a surgeon, with a steady hand and a correct knowledge of the parts, would be justified in doing it. I felt myself warranted in this, from the singular success which this celebrated anatomist informs us attended his injections, and from my own investigations of this subject. If the right arm, right side of the head and neck, can be filled with injection, after interrupting its passage through the innominata, as we believe they can, who can doubt the possibility of the blood to find its way there also, as it will pass through thousands of channels, which

art could not penetrate even by the finest injections? The well known anastomoses of arteries, and the great resources of the system in cases of aneurism, encouraged me to believe, that this operation might be performed with reasonable prospects of success. With all this sanction, and the analogy of the other great operations for aneurism, I could not for a moment hesitate in recommending and performing the operation.

The following operation, as the steps of it will show, was performed with the two-fold intention: 1st, of tying the subclavian artery before it passes through the scaleni muscles, if it should be found in a fit state; and 2dly, to tie the arteria innominata in case the former should be diseased or too much encroached upon by the aneurismal tumour.

Michael Bateman, aged 57 years, was born in Salem, Massachusetts, and by occupation a seaman. He was admitted into the New York hospital on the 1st of March, 1818, for a catarrhal affection, having at the same time his right arm and shoulder much swollen. At the time of his admission, the catarrh being thought the most considerable disease of the two, he was received as a medical patient, and placed under the care of the physician then in attendance. During the three first weeks of his residence in the house, the catarrh had greatly yielded to the remedies prescribed. The inflammation, which had produced an enlargement of the whole superior extremity, extending itself to the muscles of the neck on the right side, was also gradually subsiding.

A tumefaction, however, situated above and posterior to the clavicle, at first involved in the general swelling, and not to be distinguished from it, began to show itself. This resisted the remedies which were effectual in relieving the other, and became more distinct and circumscribed as the latter subsided; at length assuming the form of an irregular tumour.

The history which he gave of the case is as follows. He said, about a week before he entered the hospital, while at work on ship-board, his feet accidentally slipped from under him, and he fell upon his right arm, shoulder, and the back part of his head; that he felt but little inconvenience from the fall, and after a short time returned to his duty. Two days

subsequent to this, however, he felt pain in the shoulder, and the succeeding night was unable to lie upon it in bed. The whole arm and shoulder then began to swell, and became so painful that he was unable any longer to perform his duty as a seaman. The ship having arrived in New York, he was admitted into the hospital.

For some time after the general swelling had subsided, leaving the tumour distinct and circumscribed, no circumstance occurred which gave rise to a suspicion of its being aneurismal. The enlargement was thought to be a common indolent tumour, and was repeatedly blistered, with a view to discuss it. The tumour gradually diminished under this treatment; though a considerable time elapsed before any very striking change took place.

At length a faint and obscure pulsation was perceived; still it was a matter of doubt whether the tumour was aneurismal, or whether the pulsatory motion was communicated to it by the subclavian artery, immediately over which it was situated. From its firm unyielding nature upon pressure, the latter was considered as the most probable, and the blisters were continued as before. During the whole of this time the patien had worn his arm in a sling, the motions of it being very limited, and always attended with pain.

The patient remained in this state for several days, without any marked change either in his feelings or in the appearance of the tumour.

On the 3d of May, at six o'clock in the afternoon, the patient complained that he "felt something give way in the tumour," that his shoulder was very painful, and that he was able to raise it only a few inches from his side. The tumour at this time suddenly increased about one third, and a pulsation was distinctly perceptible. Its most prominent part was below the clavicle; at which place the pulsation was most distinct. The portion above the clavicle was also much enlarged; it still however had its usual firmness, except in one point near its centre.

May 4th.—The tumour is evidently increased, that portion of it more particularly which is below the clavicle; it is

not as firm and resisting as it has been. Pulsation is not so distinct as yesterday, but appears to be more diffused.

He was this day transferred to the surgical side of the house, and became my patient. The cough having become comparatively slight, the tumour appeared to be the most urgent disease; and, in my opinion, to call for prompt attention. The arm is now perfectly useless, and any motion at the shoulder joint gives him severe pain. The patient is naturally of a spare habit, and from the nature of his disease, and the confinement to which he has been subjected, has become much reduced in strength.

May 5th and 6th.—The tumour is still progressing, and the pain in the shoulder is also more severe. During the three last days his medicines have been discontinued, except that he is allowed to rub the parts about the clavicle with volatile liniment.

On the 7th I directed a consultation of my colleagues to be called, consisting of Drs. Post, Kissam and Stevens. I now stated to them that I wished to perform an operation, which would enable me to pass a ligature around the subclavian artery, before it passes through the scaleni muscles; or the arteria innominata, if the size of the tumour should prevent the accomplishment of the former. This I was permitted to do, provided the patient should assent, after a candid and fair representation was made to him of the probable termination of his disease; and that the operation, though uncertain, gave him some chance, and, as we thought, the only one of his life.

Dr. Post, at my request, communicated with him privately on this subject; and after a full explanation of the nature of the case, my patient requested to have any operation performed which promised him a chance for his life, saying that in his present state he was truly wretched.

May 8th, 9th, and 10th.—The tumour is acknowledged by all to be increasing, and it is thought proper not to defer the operation any longer. I therefore requested that preparation be made for performing it to-morrow.

It is difficult to give an idea of the size of a tumour so irre-

gular in its form, and so peculiarly situated. A thread passed over it, from the lower part of that portion of it which is below the clavicle toward the back of the neck, will measure five and a quarter inches.—Another crossing this at right angles one inch above the clavicle, will measure four inches; two and a half inches of the thread are on the sternal side of the former, and one and a half on the acromial. It rises fully an inch above the clavicle, which, added to the depression below the clavicle on the opposite shoulder, will make the size of the swelling above the natural surface about two inches.

May 11th.—One hour before the time assigned for the operation, the patient appeared perfectly composed, and apparently pleased with the idea that the operation afforded him a prospect of some relief. He was directed to take of tinct. opii, 70 drops.

No difference can be perceived in the pulsation of the arteries in the two extremities; his pulses are uniform and regular, each beating 69 in a minute.

He was placed upon a table of the ordinary height, in a recumbent posture, a little inclining to the left side, so that the light fell obliquely upon the upper part of the thorax and neck. Seating myself on a bench of a convenient height, I commenced my incision upon the tumour, just above the clavicle, and carried it close to this bone and the upper end of the sternum, and terminated it immediately over the trachea; making it in extent about three inches. Another incision about the same length, extended from the termination of the first along the inner edge of the sterno cleido mastoid muscle. The integuments were then dissected from the platisma myoides, beginning at the lower angle of the incisions, and turned over upon the tumour and side of the neck.

Cutting through the platisma myoides, I cautiously divided the sternal part of the mastoid muscle, in the direction of the first incision, and as much of the clavicular portion as the size of the swelling would permit, and reflected it over upon the tumour. The internal jugular vein was encroached upon by the swelling, which made this part of the operation of the utmost delicacy, from the morbid adhesion of that part of the

clavicular portion of the muscle to it, which was detached. I separated this portion of the muscle to as great an extent, however, as the case would possibly allow, to make room for the subsequent steps of the operation; only a part of the vein was exposed. The sterno hyoid muscle was next divided, and then the sterno thyroid, and turned upon the opposite side of the wound, over the trachea. This exposed the sheath containing the carotid artery, par vagum, and internal jugular vein. A little above the sternum, I exposed the carotid artery, and separated the par vagum from it; then drawing the nerve and vein to the outside, and the artery towards the trachea, I readily laid bare the subclavian about half an inch from its origin. In doing this, the handle of a scalpel was principally used, nothing more being required but to separate the cellular membrane, as it covers the artery. I judged it would be very imprudent to introduce a common scalpel into so narrow and deep a wound, especially as it would be placed between two such important vessels or parts, as the carotid and par vagum, and where the least motion of the patient might cause a wound of one or the other of them. The proper instrument, in my opinion, for this part of the operation, is a knife, the size of a small scalpel, with a rounded point, and cutting only at the extremity; this was used, and found to be very convenient for this stage of the operation. It can be introduced into a deep and narrow wound, among important parts, without the hazard of dividing any but such as are intended to be cut. This knife is contained in a set of instruments admirably calculated for this and other operations on arteries deeply seated, and which I shall mention more particularly hereafter.

On arriving at the subclavian artery, it appeared to be considerably larger than common, and of an unhealthy colour; and when I exposed it to the extent of about half an inch from its origin, which was all that the tumour would permit, to ascertain this circumstance more satisfactorily, my friends concurred with me in opinion that it would be highly injudicious to pass a ligature around it. The close continuity of the tumour would of itself have been a sufficient objection to the application of the ligature in this situation, independent of the

apparently altered state of the artery. Art in this case could not anticipate any thing like the institution of the healthy process of adhesive inflammation, in an artery in the immediate vicinity of so much disease. The Pathology of arteries has long since taught us, that ulcerative inflammation, and all its train of consequences, would have been the inevitable result. This was the fate of the only case, in which a ligature has been applied to the artery in this situation. The operation was performed by that eminent Surgeon of Dublin, Dr. Colles.

While separating the cellular substance from the lower surface of the artery, with the smooth handle of an ivory scalpel, a branch of artery was lacerated, which yielded for a few minutes a very smart hæmorrhage, so as to fill the wound perhaps six or eight times. It was about half an inch distant from the *innominata*, and from the stream emitted, was about the size of a crow quill. It stopped with a little pressure. I can scarcely believe this to have been the internal mammary, from the hæmorrhage ceasing so quickly; though, from its situation, it would appear so; and if from some irregularity it were not the superior intercostal, it must have proceeded from an anomalous branch.

With this appearance of disease in the subclavian artery, it only remained for me either to pass the ligature around the arteria innominata, or abandon my patient. Although I very well knew, that this artery had never been taken up for any condition of aneurisms, or ever performed as a surgical operation, yet with the approbation of my friends, and reposing great confidence in the resources of the system, when aided by the noblest efforts of scientific surgery, I resolved upon the operation.

The bifurcation of the innominata being now in view, it only remained to prosecute the dissection a little lower behind the sternum. This was done mostly with the round edged knife, taking care to keep directly over and along the upper surface of the artery. After fairly denuding the artery upon its upper surface, I very cautiously, with the handle of a scalpel, separated the cellular substance from the sides of it, so as to avoid wounding the pleura. A round silken ligature

was now readily passed around it, and the artery was tied about half an inch below the bifurcation. The recurrent and phrenic nerves were not disturbed in this part of the operation.

As most surgeons who have performed operations upon large arteries, in deep and narrow wounds, complain of the embarrassment which has attended the application of the ligature, I am happy in the present opportunity to have it in my power to recommend an instrument, or contrivance, which, in my opinion, is calculated to surmount all difficulties. This set of instruments consists of several needles of different sizes and curvatures, with sharp and blunt points, and having in each two eyes. The needles screw into a strong handle or shank of steel: two strong instruments in handles, with a ring or eye in the extremity similar to a tonsil iron, and perhaps they may be called ligature irons: a small knife rounded at the extremity like a lancet for scarifying the eyes, and a small hook at the extremity of a steel shank, also fixed in a strong handle. These instruments are the invention of Drs. Parrish, Hartshorne, and Hewson, of Philadelphia. They are the result of investigations made upon the dead body, as to the best mode and place for tying the subclavian artery on the *acromial side* of the *scaleni muscles*.*

With the ligature introduced into the eye of one of the smallest blunt needles, which was nearest the shank of the instrument, I pressed down the cellular substance and pleura with the convex part, and very carefully insinuated it from below upwards, under the artery. The point of the needle appearing on the opposite side of the artery, I introduced the hook into the other eye of it; then unscrewing the shank, the needle was drawn through with the utmost facility, leaving the ligature underneath the artery.

In the application of the ligature to this artery, I would invite the attention of those who perform it, to a circumstance which, in my opinion, is somewhat important: it is, to pass the ligature from below upwards, in order to prevent the pleura

* See Dr. Parrish's Paper, Eclectic Rep. Vol. III. p. 229.

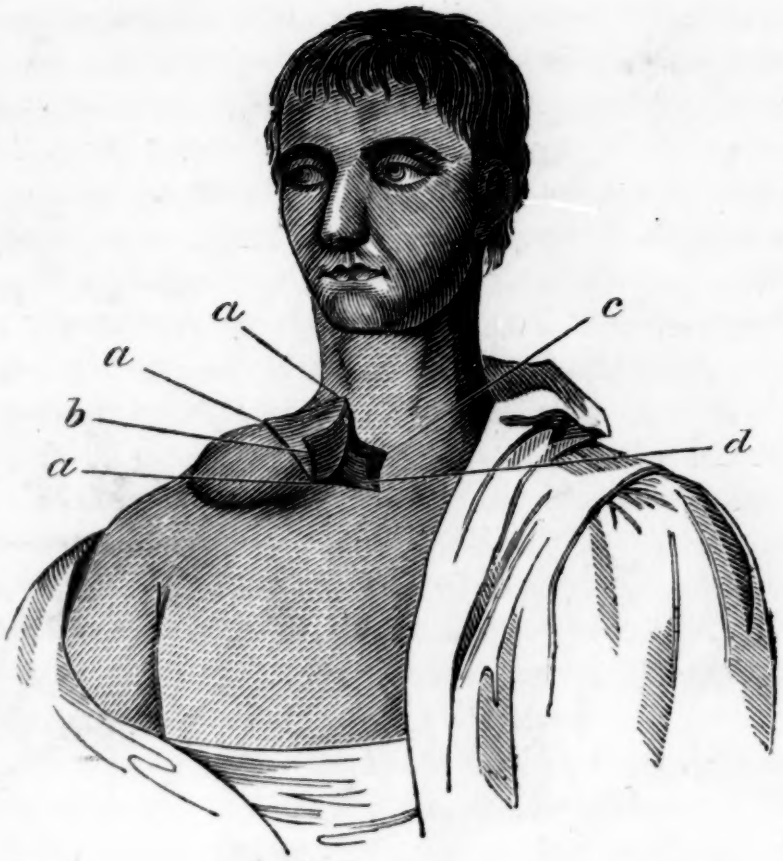


PLATE I.

Represents the tumour very correctly, with its elevation above and below the clavicle, and the extent of it towards the acromion scapulæ, and likewise as it encroached upon the trachea. The form of the external incision with the subsequent steps of the operation, as far as can be given in a drawing, are also shown.

a, *a*, *a*. The angles of the integuments as turned over upon the tumour.

b. The sternal and a part of the clavicular portion of the sterno cleido mastoid muscle, raised, and reflected over upon the integuments.

c. The sterno hyoid muscle laid over upon the trachea.

d. The sterno thyroid muscle also raised and reflected inwards over the trachea.

PLATE II.

Exhibits the morbid appearances which were found upon dissection.

a, a, a. View of the ulcer as it extended under the clavicle, and towards the trachea.

b. The upper part of the arteria innominata, about which the ligature had been applied, appearing rough and irregular from the erosion of the ulcer.

c. A coagulum of blood adhering pretty firmly to one side of the innominata.

d. Contracted and puckered appearance of the upper part of the innominata, and particularly of its internal coat.

e. Arteria innominata cut open from the aorta.

f. Anomalous branch of the innominata.

g, g. The aorta.

h. Left carotid.

i. Left subclavian.

k. The heart collapsed.

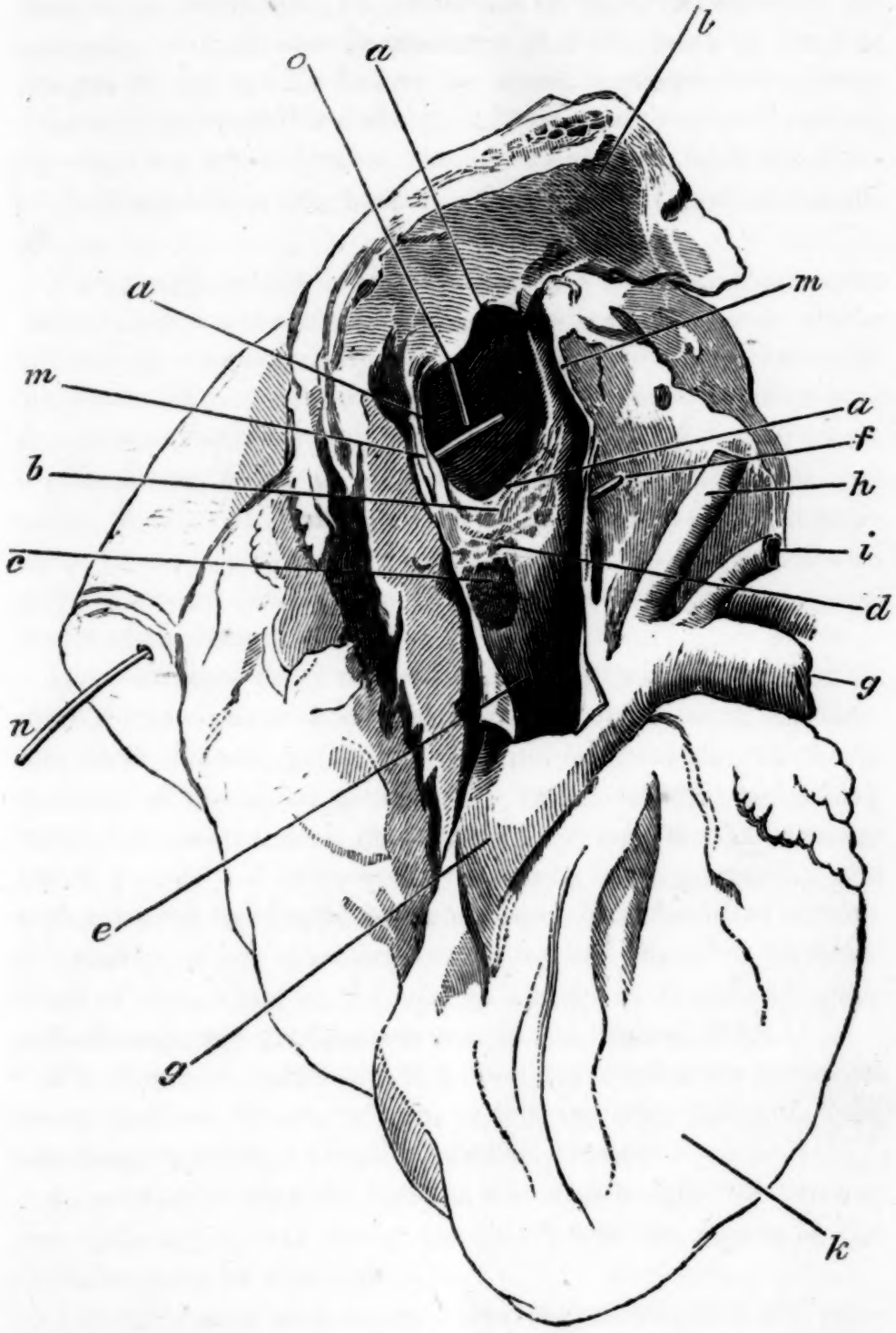
l. Sternum and clavicle turned up.

m, m. Pleura much thickened.

n. Probe introduced into the axillary artery, passed through the subclavian, and appearing in the cavity of the ulcer.

o. A small bougie passed along the common carotid, and its extremity also seen in the ulcer.

PLATE II.



from being wounded. From the use of these instruments repeatedly, I would also recommend that the hook be fixed in the eye of the needle before the shank is unscrewed, otherwise very considerable difficulty will be experienced in finding it; and even when felt, not easily introduced, from the want of firmness which the handle part of the instrument would afford.

I now made a knot in the ligature, and with my forefingers carried it down to the artery, and drew it a little so as partly to close its diameter and arrest the column of blood gradually. This was continued for a few seconds, to observe the effect produced upon the heart and lungs; when, no change taking place, it was drawn so as to stop the circulation entirely, as was shown by the radial artery of the right arm, and the right temporal immediately ceasing to pulsate. The knot was drawn more firmly by the ligature irons, and a second knot applied in the same manner.

In no instance did I ever view the countenance of man with more fluctuations of hope and fear, than in drawing the ligature upon this artery. To intercept suddenly one fourth of the quantity of blood, so near to the heart, without producing some unpleasant effect, no surgeon, *à priori*, would have believed possible. I therefore drew the ligature gradually, and with my eyes fixed upon his face, I was determined to remove it instantly, if any alarming symptoms had appeared. But, instead of this, when he showed no change of feature or agitation of body, my gratification was of the highest kind.

Dr. Post now asked him if he felt any unpleasant sensation about his head, breast, or arm, or felt any way different from common; to which he replied, that he did not.

Immediately after the ligature was drawn tight, the tumour was reduced in size about one third, and the course of the clavicle could be distinctly felt.

The parts were now brought into coaptation, and the integuments drawn together by three interrupted sutures and straps of adhesive plaster; a little lint and additional straps completed the dressing. Three small arteries were tied in the course of the operation: the first was under the sternum, and

divided with the sternal part of the mastoid muscle, and from its course may have been a branch of the internal mammary reflected upwards; the second, in raising the inner edge of the mastoid muscle, about the upper angle of the longitudinal incision, and must have been the most descending branch of the superior thyroid; and the third, was a branch of the inferior thyroid, and cut while raising the sterno thyroid muscle. The patient lost perhaps from two to four ounces of blood, most of which came from the ruptured branch of the subclavian. The operation occupied about one hour.

The curved spatulas recommended by Dr. Colles, I found of great use in the operation. I provided three for this purpose, two broad, and one narrow, bent at right angles, and sufficiently firm. After raising the muscles, they were of the greatest advantage in keeping separated the carotid artery and par vagum, as likewise the divided muscles; they served also another very useful purpose, that of preventing by their equable pressure the constant oozing from the smaller vessels; and the little room taken up in a small and deep wound, will give them a great superiority over the fingers introduced.

Ten minutes after the operation the pulse is regular, and not the least variation can be perceived; it beats 69 strokes in a minute; the patient says he is perfectly comfortable, and has no new or unnatural sensation, except a little stiffness of the muscles of the neck, which he thinks is owing to the position in which his head was placed during the operation; the temperature of the right arm is a little cooler than the left; his breathing has not been the least affected by the operation, but is perfectly free and natural.

2 o'clock, P. M.—Patient expresses a desire to eat, and is directed a little thin soup and bread; the temperature of both arms is very nearly the same; breathing perfectly natural; pulse as before.

3 o'clock, P. M.—There is still a trifling difference in the temperature of the two arms; ordered the right to be wrapped in cotton wadding; not the least unpleasant symptom has as yet made its appearance.

6 o'clock, P. M.—Complains of a little pain in his head, not

more on one side however than the other; describes it as a common head-ache: the pain of the shoulder and arm much less than before the operation: no difference can now be perceived in the temperature of the two arms; pulse a little accelerated, and perhaps a little full.

9, P. M.—Patient complains of head-ache; skin is rather hotter than natural; pulse strong and full, and beats 75 in a minute; the carotid on the left side of the neck is observed to be much dilated and in strong action; tongue moist and clean.

9½, P. M.—Symptoms continuing the same, directed him to be bled from the left arm to ℥xvj. After bleeding the pulse fell 7 beats, and was less full. Complains of some thirst; let him drink common tea.

12, P. M.—Patient has slept a little; is free from pain; pulse full and less frequent, beats 60; skin moist and of a natural temperature.

Second day, 2 o'clock A. M.—Patient enjoys a natural and undisturbed sleep: respiration free, and performed without the least difficulty.

5, A. M.—He has rested well the last three hours. Says he has a slight head-ache, and a little pain in the right elbow: the latter he attributes to the position in which his arm has lain during sleep; pulse full, but not so tense as before the venesection; skin natural and moist; temperature of both arms the same. He states that he can now incline more upon the right shoulder than he has been able to do since the second day after he received the injury.

9, A. M.—Pain in the head no way troublesome; skin moist and of natural temperature; tongue clean; says his neck feels stiff, but is not painful; has no difficulty in swallowing. His cough has thus far been much less frequent than before the operation: expectoration is also attended with less difficulty; pulse 75, full, but not tense; has taken a dish of coffee, and some bread; complains of some thirst; directed a solution of supertartrite of potass to be drank occasionally.

10, A. M.—Symptoms as before; the veins of the fore-arm and hand since the operation have been as much distended as previous to it, and upon compressing them so as to stop the

circulation, and allow the vein to become empty for some distance above, the column of blood is seen to distend the vein immediately upon the removal of the pressure; plainly showing, that the circulation is going on with considerable rapidity, although no pulsation has been felt in the brachial or radial arteries. The radial artery can be easily distinguished by the fingers, and seems to be filled with blood. There is evidently a pulsation in the anterior branch of the temporal artery, just as it is passing a little above the exterior canthus of the orbit; the left external carotid is beating with increased action, and appears larger than natural.

3, P. M.—Has taken a light dinner, and complains of a little head-ache; pulse has become tense, and is also increased in frequency; skin is considerably hotter than natural; tongue too indicates a febrile action: was bled to ℥viij. and directed to drink freely of a solution of the supertartrite of potass.

10, P. M.—Since the last report he has become more comfortable; complains of no pain, and says he lies perfectly easy; pulse increased in frequency to 78, but of the natural soft feel; the right side of the face has been at times a little cooler than the left, and is so at the present time: it is, however, not so much so as to be perceptible to the patient; temperature of the right arm natural: that of the left, and the whole body, is above the natural standard, but it is moist; tongue is clean: having had no evacuation from his bowels since the operation, is directed to take a saline cathartic, in divided doses.

1, A. M.—Complains of nothing; has not slept any; cathartic has operated twice.

Third day, 5 A. M.—Has had no sleep, in consequence of the operation of the medicine, it having produced free evacuations in the course of the night; skin not so moist, but of natural temperature; the two arms have equal warmth; pulse full, and rather more frequent than last evening: says his right elbow is a little painful, and the arm feels tired. The complete flexion of the arm at the elbow is prevented by a little rigidity of the extensor muscles.

9, A. M.—He is now comfortable, has slept a little, and feels refreshed; pulse is full, and rather more frequent than

natural; skin natural and moist: the size of the tumour is considerably diminished; has taken a dish of chocolate and some rusk.

11½, A. M.—Patient still free from pain, or any uneasiness; medicine has operated seven times; skin not hotter than natural, and moist; tongue clean; the right facial and anterior temporal arteries communicate a distinct pulsation to the fingers. Having slept but little during the last night, directed him to take an anodyne of Tinct. Opii. gtt. xxx. and to have the room made dark, and kept quiet, in order to procure him some sleep: let him have sago or panada as often as he inclines to take nourishment.

4, P. M.—Has slept the last two hours, and is still sleeping; respiration free and easy; nothing the least unnatural in his appearance.

10, P. M.—He has slept four hours, and is much refreshed; is free from pain, except a little in the elbow; pulse small and soft, beating 105 strokes in a minute; tongue clean; feels a little soreness in the wound when swallowing; has taken a considerable quantity of sago and panada; his appetite is good; temperature natural and uniform in both arms.

12, P. M.—Patient has slept the greater part of the time; is free from pain, and perfectly comfortable; skin moist and natural; pulse soft, small, and frequent.

Fourth day, 6 o'clock, A. M.—Patient has passed a good night; says his right elbow gives him some uneasiness, but complains of nothing else; tongue is clean; skin moist and natural; can move the right arm with considerable ease; says he takes as much light nourishment as he has been accustomed to for some time past: no unfavourable symptom has as yet made its appearance.

11, A. M.—Symptoms continue much the same; tongue slightly furred; pulse comparatively small and soft, beats 105, and regular; respiration has been uniformly natural since the operation; suppuration has begun to appear through the dressings, and is attended with a little fœtor; let them be covered with a yeast poultice: it is thought that a faint pulsation or un-

dulation is at intervals felt in the radial artery of the right arm: the left external carotid continues its increased action.

6, P. M.—No change is observable in the patient's symptoms; he still continues comfortable, and complains of nothing.

Fifth day, 11½ o'clock, A. M.—The wound was dre sed today: on removing the poultice the dressings were soft and easily came away; the suppuration was considerable, and of a healthy appearance; it was found that the extremities of the two incisions were united as far as the sutures, each about one inch in extent; one suture at the angle of the wound was removed; the wound was dressed with dry lint, gently pressed into it; adhesive straps and a compress: his pulse beats 110, is fuller and stronger than yesterday.

6, P. M.—Patient is very comfortable, subject to no pain or unnatural sensation; pulse still 110, but softer.

Sixth day, 6, A. M.—Patient sleeps; respiration not attended with the least difficulty; skin moist and natural.

9, A. M.—He has rested well during the night, and is perfectly free from pain; pulse 110, and soft; skin moist; tongue clean: having had no alvine evacuation since the 13th, directed to take of sulphate of soda ℥j, in divided doses.

11, A. M.—The dressings were again removed, and the discharge seemed more considerable than at the former dressing; the sides of the wound are granulating, and appear perfectly healthy; on the ends of the muscles that were divided in the operation, there are small sloughs which are beginning to separate, leaving a healthy surface underneath; wound was dressed with lint spread with Ung. Res. Flav. and adhesive straps: pulsation is now perfectly distinct in the branches of the right external carotid artery: complains a little of the back part of his head, which he says is sore from lying; in other respects is comfortable.

6, P. M.—Has no pain, and is in every respect much as usual; tongue clean; skin natural; says he feels "no weaker than before the operation."

Seventh day, 6, A. M.—He has passed a comfortable night, and is free from pain or any uneasiness; pulse regular and

soft, and beats 105 in a minute; skin moist, and of natural temperature.

11, A. M.—The wound was again dressed: suppuration considerable and healthy; some of the small sloughs came away, leaving a healthy and florid surface beneath: sprinkled the wound with powdered carbon, then filled it lightly with lint, and over this applied the yeast poultice, which was secured with adhesive straps: temperature of the two arms is the same, cathartic having produced no effect, *Habeat enema purgans statim.*

9, P. M.—Symptoms have not varied materially: the enema has produced a copious evacuation: says he feels more comfortable, and desires to set up in bed, which was allowed, taking care to have him raised up very cautiously, in order to prevent any exertion being made with the right arm and shoulder.

Eighth day, 6, A. M.—Patient has rested well during the night; says he feels some pain on swallowing, and that when the attempt is made, it gives rise to a fit of coughing, which fatigues him; it also occasions some soreness in the wound: pulse still soft, and less frequent than yesterday: he takes a reasonable quantity of light food every day:—Directed a cetaceous mixture for his cough, and is permitted to set up for a short time, if he feels disposed.

11, A. M.—Pulsation of the radial artery of the right arm to be felt occasionally pretty distinct; cough has become more troublesome; pulse 100; skin natural and moist. The dressings were again removed, and the suppuration is more profuse, apparently healthy, though attended with considerable fœtor; appearance of the wound every way favourable; small portions of the sloughs are removed at each dressing, and the sides of the wound look perfectly healthy; the same dressings to be continued.

9, P. M.—Complains only of his cough, which troubles him frequently; can move his arm with much more facility, and has no pain in it; circulation as before, and the temperature uniform and natural. The wound was dressed this evening, in consequence of the fœtor being unpleasant to the patient; continue the dressings.

Ninth day, 7 A. M.—Patient was found sitting up in bed, supported by a bed-chair, having passed a good night; is in good spirits, and expresses his gratitude for the relief afforded by the operation; says he can move the arm with greater ease, and it gives him no pain; pulse 105, regular and soft; skin natural; every symptom as favourable as could be wished.

10, A. M.—Pulse less frequent, regular and soft; temperature perfectly natural; wound has a more favourable appearance, discharges less in quantity, and it possesses less fœtor: dressed the wound as yesterday; tumour has diminished two thirds, is soft, and less florid. The apex of the tumour is now below the clavicle.

6, P. M.—Patient still in every respect as comfortable as at the last report.

9, P. M.—Pulse 110, regular and soft: the dressings were removed this evening; the wound is much contracted in size, and is perfectly healthy, except a small slough which still remains in the deepest part of the wound; granulations are shooting up rapidly from the sides.—When preparing to renew the dressings, an unexpected and an unaccountable hemorrhage took place, which suddenly filled the cavity of the wound. The rapidity with which the blood flowed, and the size of the stream, gave rise to fearful apprehensions for the man's safety: dry lint was immediately placed in the wound, and as much pressure made as the patient could conveniently bear, which quickly stopped it. After continuing the pressure for a short time, the lint was removed, when no hemorrhage recurring, the usual dressings were repeated: the patient experienced no ill effects from the bleeding, nor did he seem to be much agitated. At 10, o'clock P. M. has no pain, nor has he as yet had any sleep.

Tenth day, 7, A. M.—Has passed a comfortable night, except that he has been frequently disturbed by his cough: tongue clean; skin moist; pulse soft, and has much less strength than before.

11, A. M.—The dressings were again removed, and the wound made clean; its appearance is in every respect favourable; does not appear to have been the least injured by the

hemorrhage: the dressings were renewed as before: he is directed to take half an ounce of the cold infusion of cinchona every hour, and to drink occasionally of ale when thirsty: has had an evacuation from his bowels to-day.

6, P. M.—Symptoms much as before; complains a little of his elbow, and a numbness in his hand; to relieve which he is directed to have the arm and hand rubbed well, and wrapped in wadding.

Eleventh day, 6 A. M.—Patient has rested well during the night; cough has not been so troublesome, says he has no pain, and feels perfectly comfortable; pulse better than yesterday; other symptoms as before.

11, A. M.—The wound is dressed daily at this hour; its appearance is still very favourable, although there is still some fœtor in the suppuration: the wound has contracted perhaps one third: the tumour is also considerably diminished, and softer than before; pulsation in the right temporal and radial arteries as before: the same dressings to be continued.

6, P. M.—No change in the patient's general symptoms; pulse soft, and rather more frequent; appetite is as good as usual.

9, P. M.—Appearances have not varied.

Twelfth day, 6 A. M.—Our patient was visited as usual this morning, but there is no evident change in any of his symptoms; says he now rests well at night.

11, A. M.—To-day, when the dressings were removed, that portion of the slough which occupied the bottom of the wound (apparently a portion of the sheath of the vessels) came away: every part of the wound now, where its surface can be seen, has a healthy look: the most depending part is obscured by a quantity of pus, which cannot be wholly removed by lint, and it is not thought safe to permit the patient to lie in such a position as will allow it to be discharged: with the slough came away the ligature which had been applied to an artery under the lower portion of the sterno-thyroid muscle; it was followed by no hemorrhage: the wound was now dressed with pledgets of lint, spread with Ung. Resinæ

Flavæ and adhesive straps. He remains much as yesterday, has drank freely of ale; pulse rather stronger than yesterday.

Thirteenth day, 7 A. M.—No perceptible change in his symptoms; complains of no pain, and says he feels very comfortable; cough has given him very little trouble for the last two days; he is evidently considerably weaker than before the operation, but is not sensible of it himself.

11, A. M.—The wound was again exposed; it is not as florid as yesterday, and there is a greater secretion of pus; the cavity of the wound was filled with dry lint only; the pus appears well formed, and has very little fœtor.

The same dressings were repeated in the evening; there is still a quantity of pus at the bottom of the wound, which rises and falls at each inspiration and expiration: it continues to contract above, leaving us uncertain of its extent beneath: during the last three days, the patient has set up for several hours each day.

9, P. M.—Pulse and skin perfectly natural; has had a natural evacuation from his bowels to-day; continues the infusion of bark as prescribed before.

Wound was again dressed, and is as healthy as usual; suppuration just sufficient to moisten the lint: the same dressings to be continued.

Fourteenth day, 7 A. M.—Patient has slept well during the night, and is as well as usual; complains of soreness of the ulcer which he has had for some time between his shoulders; it is improving in its appearance, and is directed to be dressed as usual with Ung. Resinæ Flavæ. The erysipelatous blush which surrounded it, is not as florid as heretofore; it is beginning to granulate, and assume a healthy appearance: in other respects he is perfectly comfortable: he is now able to raise the right arm to his lips, which he has not done since the fourth day after the accident by which his shoulder was injured; says too that he is getting stronger, and that he walked across the floor this morning without any assistance.

11, A. M.—On removing the dressing, the granulations appear perfectly florid and healthy: the bottom of the wound is not visible, owing to the small quantity of matter which col-

lects there, and from its depth cannot be easily removed, and perhaps not altogether safely; the position of the patient in bed must necessarily make the bottom of the wound the lowest: when he coughs or swallows, a small quantity of fluid pus at the bottom of the wound is seen to rise and fall; from the general appearance however of the wound, the man's feelings, and many other circumstances, it is not probable that there is any considerable quantity: the large ligature lying very loose in the wound, was taken hold of, merely however to see if it was separated; no force was used: pulsation of the right radial artery more distinct than heretofore: countenance of our patient is improving; says he feels more comfortable than before the operation: he can now straighten his arm, and raise it to his mouth with facility: as yet he has not recovered his strength, but is improving daily; has been setting up all day: directed him when lying down, to assume a more recumbent posture. Continue the sulphuric acid and infusion of cinchona, as before: complains of the ale being too strong; let it be diluted and made pleasant with sugar and nutmeg.

9, P. M.—The large ligature, since the operation, has been confined upon the upper part of the sternum by a piece of adhesive plaster, to prevent any accident during the dressings. Upon dressing the wound this evening, the large ligature as it lay in the wound, appearing to be loose, was again taken hold of with the forceps, and found floating upon the pus, being completely separated from the artery below. The ligature was drawn so firmly upon the artery, that the noose was only large enough to admit the rounded end of a common probe. The wound looks healthy, and is contracting rapidly; it is now perhaps not more than one third of its original size. Suppuration is now only sufficient to moisten the lint through.

Fifteenth day, 12 o'clock.—The patient is comfortable in every respect; pulse and skin perfectly natural; is sitting up in bed, and occasionally amusing himself with a book; not the least symptom about him indicating indisposition: wound is healthy, and continues to improve in appearance. The right arm at intervals gives him a sensation of numbness,—not more, however, than can be accounted for from the uniform

position in which the arm rests, and no doubt a more languid circulation, as it is readily removed by a little friction and motion of the arm. His appetite improves, and he expresses a desire to walk about the room. The bark and sulphuric acid to be continued.

9, P. M.—In the afternoon he was removed down stairs, from the private room in which he was placed immediately after the operation, to the ward in which he formerly lay, and appeared highly gratified with the idea of again seeing his friends, whom he had left with very little hope of ever returning to. The wound, upon being dressed, did not appear to have undergone any perceptible change.

Sixteenth day, 11 A. M.—Our patient's strength is improving. To-day he made an effort, and with success, to visit his friends in Ward No. 7, where he lay previous to his being transferred to the surgical department, and returned, without having any support; pulse as strong as before the operation, and in every respect natural; appetite better than before the operation; cough a little troublesome, but less so than for several days previous; wound dressed with dry lint.

9, P. M.—Dressings removed; patient as before; suppuration small in quantity, and appears to be well-formed pus, and is not attended with the least fœtor.

Seventeenth day, 11 o'clock.—The ends of the divided muscles are nearly in contact, and the surfaces of the wound are rapidly granulating, and in every respect look well: patient's health continues to improve; he walks about the room with perfect ease, and into several wards in the same story; the ability to move the arm increases; pulse and skin natural. The dressings were removed at 4 P. M., and also at 10 P. M.

Eighteenth day.—The patient's strength continues to improve; every symptom remains highly flattering; cough less troublesome. The dressings were again removed to-day three times.

Nineteenth day.—Continues the same as yesterday; wound dressed three times.

Twentieth day.—To-day he passed down two pair of stairs, and walked several times across the yard, was highly de-

lighted with his performance, and felt not the least inconvenience from it; sleeps uniformly well during the night, and takes more food during the day than he did previous to the operation; continues the infusion of cinchona and sulph. acid as before, and directed to use dry lint as the dressing.

Twenty-first day.—Dressed the wound three times again to-day; it is nearly closed at the bottom; the power of motion in the right arm continues to increase: he can now move it with as much facility as the left, though not to the same extent: his strength is daily improving, and the operation is considered by all to have been completely successful; size of the tumor continues the same, no diminution of it having been perceived for the last week; the most prominent part of the tumor is yet below the clavicle; that above rises to about the height of the clavicle, which gives a little convexity to the place between the clavicle and trapezius muscle.

Twenty-second day.—Continues to improve in every respect; dressings renewed as often as yesterday; owing to the weather he has not left his ward to-day; pulse full and strong; temperature of both arms the same.

Twenty-third day.—A few minutes before the hour of visiting to-day, a message was brought that the patient was bleeding from the wound. The dressings were immediately torn off, and dry lint crowded into the wound, and slight pressure applied for a few minutes, when the hemorrhage ceased. The patient lost at this time, perhaps, about 24 ounces of blood, and was very much prostrated. Pulsation ceased in the radial artery of the left arm, and the countenance, gasping, and convulsive throes threatened immediate dissolution; all present apprehended the instant death of the patient. The first impression was, that the trunk of the arteria innominata had given way. The conjecture afterwards was, that the subclavian artery, from the diseased state of it, had not united by adhesion, and that the fluid blood from the tumour had regurgitated through its ulcerated coats. This appeared to be the most probable, both from the suddenness with which the blood ceased flowing, and the cause the patient assigned for the hemorrhage. He says that he felt weary of lying on

his left side and back; that he had just turned on the right, which he had not done before since the operation, agreeable to my request. At the instant of turning over, something arrested his attention, which caused him to turn his head to the opposite side suddenly, and he felt the gush of blood from the wound.

He was directed some wine and water frequently, which soon revived the circulation. The wound was dressed with dry lint and a compress. Pulse as frequent as natural, but very small and soft: he appears very languid, and complains of a numbness and painful sensation in his hands; says also that his back aches. During the last twenty-four hours he has taken a pint and a half of Madeira wine: he also took occasionally some egg and wine, which was immediately rejected from the stomach.

9, P. M.—Patient has lost his appetite, and appears considerably depressed; circulation very languid in the right arm; temperature of it is a little less than the left: directed a hot brick to be wrapped in flannel, and placed close to the arm. For a profuse perspiration which he has been in for the last three hours, he was ordered to be bathed with cold rum.

Twenty-fourth day, 6 A. M.—Slept the greater part of the night, and feels comfortable; is still languid, and has no disposition to eat any thing; says he feels sick, and once, last evening, vomited after drinking some wine and water.

Wound looks exceedingly pale, and the discharge is thin and fœtid, for which the carbon and yeast dressings were applied. He has vomited several times to-day, has some considerable difficulty in swallowing, and complains of a soreness in the wound upon pressure.

9, P. M.—Dressings removed; wound very pale; right arm of the natural temperature; feels occasionally a little numbness in the hand; has taken very little nourishment during the day; pulse natural as to frequency, but small and feeble; a few minutes after dressing the wound, information was brought that hemorrhage had ensued, and before it could be commanded, he probably lost four ounces of blood. For his restlessness and pain in the bones he was ordered two grains of opium.

Twenty-fifth day.—Has rested well during the night, and is perhaps a little better this morning. The repeated hemorrhages have debilitated him exceedingly, and from the irritable state of the stomach he can take only a very little nourishment. In the morning he was directed the effervescing draught, to be repeated every two hours; this allayed the irritability of his stomach, and enabled him to take a little breakfast.

His countenance has altered since the first bleeding surprisingly, his eyes are now heavy, and for the most part fixed; his cheeks are sunken, and an universal pallor has spread itself over his countenance; and from every appearance, a short time will terminate his existence. He has not vomited since early in the morning; is advised to take a little soup, and to drink freely of wine and water; dressings were renewed at 3 o'clock P. M. shortly after which the patient again bled, but not to exceed, however, an ounce. He was dressed with dry lint as usual.

11, P. M.—Patient has not as yet had any sound sleep, is restless and apparently distressed, although he says he feels no pain; breathing is attended with some difficulty; his hands and legs are continually in motion; pulse small and feeble.

Twenty-sixth day, 6 A. M.—Patient has not rested well; is occasionally falling into little slumbers, but is awaked by the least motion: Pulse small and feeble; respiration somewhat laboured; appears to be sinking; seems disinclined to take any thing; legs and arms constantly in motion.

11, A. M.—More feeble than before; has been forced to take a little chocolate; is evidently sinking; wound was dressed, but there was no secretion of pus in it; countenance of the patient foretels his approaching dissolution.

6, P. M.—Is extremely low; respiration very much laboured; is not able to articulate: for the last three hours there has not been such continued throwing of the legs and arms about the bed: he lays in a state of insensibility; *temperature of the two arms the same to the last.*—My pupil, Abraham I. Duryee, the House Surgeon, (to whom I am indebted for the correct reports, and the most unwearied attention to this case, and

whose ingenious application of means for the recovery of many of my patients, will long be held by them in grateful remembrance,) having for a few minutes left the patient, he was sent for immediately, as there was another bleeding from the wound, by which he lost probably eight ounces of blood: during the whole time he did not manifest the least appearance of consciousness, nor was the least motion perceptible, except that necessary for respiration and circulation: the hemorrhage was stopped with lint, after removing the former dressings; respiration is now performed with the utmost difficulty, and the patient appears as if every respiration would be the last: he expired at half past six in the afternoon: the temperature of the right arm after death, appeared by the touch to be the same as the left; it was as natural and uniform as other parts of the body.

Examination of the Body.

About eighteen hours after death, I opened his body; there was considerable emaciation, and the surface of the wound was of a dark brown colour, and fœtid; the wound was perhaps about one third of its original size; it had been enlarged by the pressure of lint into it, and other means to arrest from time to time the hemorrhage: the ulcer between his shoulders was ill-conditioned.

For the purpose of examining the condition of the aorta, where the arteria innominata is given off, as also the origin of the latter vessel, as well as the state of the pleura at the part about which the ligature had been applied around the artery, the chest was opened in the following manner. After removing the integuments and muscles from the fore part of the chest, the sternum was carefully sawed through, about an inch from its upper extremity, and raised by sawing through the ribs below the junction of the cartilages; this removed so much of the front part of the chest as to facilitate and expose fully to view the subsequent steps of the dissection; by thus leaving the clavicles attached, every part connected with the ulcer and great vessels could be seen and examined in sitû.

The arch of the aorta and origin of the innominata being fairly exposed, not a vestige of inflammation or its consequences could be discovered, either upon them, the lungs, or the pleura, at any part. An incision was next made longitudinally into the aorta opposite the origin of the innominata, and upon introducing a probe cautiously up the latter vessel, it was seen to pass into the cavity of the ulcer; the innominata was then laid open with a pair of scissors into the ulcer; the internal coat of this vessel was smooth and natural about its origin, but for half an inch below where the ligature had cut through the artery, it showed appearances of inflammation, and there was a coagulum adhering with considerable firmness to one of its sides; showing that nature had made an effort to plug up the extremity of so large a vessel, after the adhesion, which no doubt had been effected by the ligature, was swept away by the destructive process of ulceration. The upper extremity of this vessel was considerably diminished in its diameter by the thickened state of its coats, occasioned by the surrounding inflammation. The innominata about half an inch from the aorta, and a little to the left side, gave off an anomalous artery large enough to admit a small size crow-quill.

The ulcer at the bottom was more than twice the size of the wound in the neck; it extended laterally towards the trachea and under the clavicle towards the tumour. The tripod of great vessels, consisting of the innominata, subclavian, and carotid arteries, to the extent of nearly an inch, was dissolved and carried away by the ulceration. The extremities of the two latter vessels were found also to open into the cavity of the ulcer. The upper surface of the pleura was very much thickened by the deposit of newly organized matter, for the safety and protection of the cavity of the thorax. Indeed, instead of having increased the danger of penetrating this membrane, the adhesive inflammation which preceded the ulcerative, seemed, by the consolidation of cellular membrane, and the addition of new substance, to have more securely and effectually shielded it from danger.

The internal surface of the carotid artery was lined with a coagulum of blood, more than twice the thickness of its coats,

and extending above the division into internal and external, so as almost to give them a solid appearance, insomuch that a probe could barely be introduced. The subclavian artery, internally and externally to the disease, was pervious. The brachial and other arteries of the right arm were of their common diameter, and in every respect natural. The external thoracic or mammary arteries, as they went off from the subclavian, were larger than natural: the right internal mammary was pervious, and of the usual appearance. Upon opening into the tumour, which now gave (from its small size) no deformity to the shoulder, the clavicle was involved in it, and found carious, and entirely disunited about the middle. A number of lymphatic glands under the clavicles, and particularly the left, were considerably enlarged, and, when cut into, very soft, and evidently in a state of scrophulous suppuration. No other morbid appearances were observed.

Several very important facts are established by this operation—facts which no surgical operation has ever before confirmed. It proves very conclusively, that the heart, the brain, and the right arm, were not the least injured by it, in any of their functions. To tie so large a vessel, so near the heart, might very reasonably be expected to occasion some immediate derangement in the actions of that organ: but it was neither increased nor diminished in its contractions, nor did it give rise to the least visible change in his respiration. All this could not have been anticipated. I apprehend there are no ingenuous surgeons, who would not have expected quite a contrary result. For my own part, I must confess, that this was to me an anxious moment, when I drew the ligature upon this artery. Indeed, so apprehensive was I that some serious, if not almost immediately fatal consequences, would follow, from arresting so large a proportion of the whole mass of blood suddenly, that I drew the ligature very little at first. But when no change took place in the actions of the heart, or respiration, I felt a confidence in completely intercepting the whole current of blood through this great vessel.

The brain in no operation has been deprived of so large a

quantity of blood as in this, and yet it suffered no inconvenience: from the effect of experiments however upon animals, I entertained no fear as to the consequences of my operation upon this organ.

The right arm, as the reports of the case from day to day will show, was in no want of a sufficient supply of blood for the purposes of its economy. That circulation went on to a degree adequate to its wants, the natural warmth and function of the skin fully prove; and although at no time could all be satisfied that a pulsation was perceptible in the radial artery, yet many at times were of the opinion, that an occasional undulatory motion was very evident: every one was confident of the distended and elastic feel of this artery, and could plainly see, from pressing on the distended veins upon the back of the hand, that a free circulation of blood was going on: but independent of these evidences, the natural warmth and free perspiration would alone be sufficient to establish the fact.

The route of circulation to the right arm was somewhat different, at first, from what took place after the ulceration had extended. The inosculation of the epigastric and internal mammary must have thrown a considerable retrograde current of blood through the latter vessel into the subclavian directly, and which in all probability passed on into the arm: after the ulceration had extended, this communication was cut off by the destruction of the subclavian to some distance. It was now that the principal supply of blood to the arm must have been derived from the free communication of the intercostals with the thoracic arteries. From the large size of these, as found in the dissection, I apprehend they must have afforded the principal channels through which the blood was conveyed to the arm after the operation: the anastomoses of the infrascapular and other arteries of the axilla, more or less with small branches of the intercostals, as also the occipital, with small ascending branches from the subclavian, may have given some trifling assistance.

The ulceration which went on so insidiously at the bottom of the wound, was the sole cause of the death of my patient. While the upper part of the wound put on a favourable appear-

ance, and seemed healing, mischief was extending below. The separation of the ligature on the fourteenth day, spontaneously, without being followed by any hemorrhage for a number of days, and not until ulceration had extended, conclusively proves to my mind, that all the purposes of the ligature were completely answered—that adhesion was fully effected. Had it not been for the ulcerative inflammation, no doubt will be entertained, I think, by surgeons, but that my patient would have recovered. From occupation, his constitution was indeed very old, and with an ill-conditioned habit, every thing favoured the process of ulceration. The position of the wound may be said by some to favour this process, but in a sound healthy habit it would only retard the wound in its recovery, but would never promote ulceration.

The practicability and propriety of the operation appear to me to be satisfactorily established by this case: and although I feel a regret, that none know who have not performed surgical operations, in the fatal termination of it, and especially after the high and just expectations of recovery which it exhibited; yet I am happy in the reflection, as it is the only time it has ever been performed, that it is the bearer of a message to Surgery, containing new and important results.

Surgical account of the Naval Battle on Lake Erie, on the 10th of September 1813. *By* USHER PARSONS, M. D. *Surgeon in the United States Navy.*

[From the New-England Journal of Medicine and Surgery for October, 1818.]

MESSRS. EDITORS,

To such of your readers as are unacquainted with the duties of a surgeon in a naval engagement, and with the description of wounds that fall under his care, the following sketch may be acceptable.

Our force, employed in this action, consisted of nine vessels with about six hundred officers and men, and had been out of

port four weeks, either cruising or lying at anchor in Put-in-bay; a safe harbour, among a cluster of islands near the head of the lake. The crews left port in good health, but shortly after were visited with an epidemic, which spread through the fleet, attacking about twenty or thirty in a day. It answered the description of a bilious remittent fever, was of short duration, except in a few instances, in which it degenerated into a typhus, and in only one instance proved fatal. So rapid were the recoveries, that, of above two hundred cases, only seventy-eight were reported unfit for duty on the day previous to the action. Thirty-one of these were on board the Lawrence, and about the same number on board the Niagara, their whole crews being about one hundred and forty men each.

About twelve o'clock, on a clear pleasant day, we met the enemy. The action soon became general, and was severely felt; especially on board the Lawrence, the flag ship; two of the enemy's largest vessels engaging her, at a short distance, for nearly two hours; part of which time the men fell on board of her faster than they could be taken below. The vessel being shallow built, afforded no cock-pit or place of shelter for the wounded; they were therefore received on the wardroom floor, which was about on a level with the surface of the water. Being only nine or ten feet square, this floor was soon covered, which made it necessary to pass the wounded out into another apartment, as fast as the bleeding could be stanched either by ligatures or tourniquet. Indeed this was all that was attempted for their benefit during the engagement, except that in some instances division was made of a small portion of flesh, by which a dangling limb, that annoyed the patient, was hanging to the body. Several, after receiving this treatment were again wounded, among whom was midshipman Lamb, who was moving from me with a tourniquet on the arm, when he received a cannon ball in the chest; and a seaman brought down with both arms fractured, was afterwards struck by a cannon ball in both lower extremities.

An hour's engagement had so far swept the deck, that new appeals for surgical aid were less frequent; a remission at this time very desirable both to the wounded and myself; for the

repeated request of the Commodore, to spare him another man, had taken from me the last one I had to assist in moving the wounded; in fact many of the wounded themselves took the deck again at this critical moment. Our prospects nevertheless darkened, every new visitor from the deck bringing tidings still more dismal than the last, till finally it was announced that we had struck. The effect of this on the wounded was distressing in the extreme; medical aid was rejected; and little else could be heard from them, than "sink the ship" —"let us all sink together." But this state of despair was short. The Commodore, who was still unhurt, had gone on board the Niagara, and, with the small vessels bearing down upon the enemy, soon brought down the flags of their two heaviest ships, and thus changed the horrors of defeat into shouts of victory. But all the wounded were not permitted to mingle in the joy. The gallant Brooks, and some others were no more. They were too much exhausted by their wounds, to survive the confusion that immediately preceded this happy transition.

The action terminated shortly after three o'clock; and, of about one hundred men reported fit for duty in the morning, twenty-one were found dead, and sixty-three wounded. The wounded arteries occupied my first attention, all which, except where amputation was required, were rendered secure before dark. Having no assistant, (the surgeon on board with me being very sick,) I deemed it safer to defer amputating till morning, and in the mean time suffered the tourniquets to remain on the limbs. Nothing more was done through the night than to administer opiates and preserve shattered limbs in a uniform position. At daylight a subject was on the table for amputation of the thigh, and at eleven o'clock all amputations were finished. The impatience of this class of the wounded, to meet the operation, rendered it necessary to take them in the same succession, in which they fell. The compound and simple fractures were next attended to, then luxations, lacerations and contusions, all which occupied my time till twelve o'clock at night.

The day following I visited the wounded of the Niagara, who had lain till that time, with their wounds undressed. I

found the surgeon sick in bed, with hands too feeble to execute the dictates of a feeling heart. Twenty-one wounded were mustered, most of whom were taken on board the Lawrence and dressed, and afterwards such as were lying in like manner on board the small vessels. In the course of the evening the sick were prescribed for, which was the first attention I had been able to render them since the action.

The whole number of wounded in the squadron was ninety-six. Of these twenty-five were cases of compound fracture, viz. of the arm, six; of the thigh, four; of the leg, eight; of the shoulder, three; of the ribs, three, and skull, one. Of simple fracture there were four cases; viz. of the thigh, leg, arm and ribs. Grape-shot wounds were three; and cannister four. The splinter and lacerated wounds, large and small, were thirty-seven. There were two cases of concussion of the brain; three of the chest, and two of the pelvis. The contusions large and small were ten, and sprains six.

Of the whole number, three died; viz. midshipman Claxton with compound fracture of the shoulder, in which a part of the clavicle, scapula and humerus was carried away; a seaman with a mortification of the lower extremity, in which there had been a compound fracture, and another with a fracture of the scull, where a part of the cerebral substance was destroyed.

The compound fractures of the extremities were much retarded in their cure, by the frequent displacement of the bones, by the motion of the ship in rough weather, or by some other unlucky disturbance of the limb. In this way the bones in one case did not unite, until after forty days had elapsed, and in two or three other cases, not till after twenty-five days. The delay of amputations already mentioned had no effect on the success of the operations. Every case did well.

There were not more than two very singular wounds, or such as would be unlikely to occur in any sea engagement. In one of these cases, a grape shot four times as large as a musket ball, passed under the pyramidal muscle, without injuring the peritoneum. In the other, a cannister shot twice the size of a musket ball entered the eye, and on the fifth or sixth day

was detected at the inside of the angle of the lower jaw and cut out. In its passage it must have fractured the orbitar plate of the upper jaw-bone, the orbito temporal process of the sphenoid bone, and passing under the temporal arch, inside the coronal process of the lower jaw, must have done great injury to the temporal muscle, and other soft parts, lying in its way.

The recovery of so great a proportion of the wounded may in a great measure be attributed to the following causes: First to the purity of the air. The patients were ranged along on the upper deck, with no other shelter from the weather, than a high awning to shade them. They continued in this situation for a fortnight, and when taken on shore, were placed in very spacious apartments, well ventilated. *Secondly*, to the supply of food best adapted to their cases, as fowls, fresh meat, milk, eggs and vegetables in abundance. The second day after the action, the farmers on the Ohio shore brought along side every article of the above description, that could be desired. *Thirdly*, to the happy state of mind which victory occasioned. The observations which I have been able to make on the wounded of three engagements, have convinced me, that this state of mind has greater effect, than has generally been supposed; and that the surgeon on the conquering side will, cæteris paribus, always be more successful, than the one, who has charge of the vanquished crew. *Lastly*, to the assistance rendered me by Commodore Perry and Mr. Davidson. The latter gentleman was a volunteer soldier among the Kentucky troops, and engaged to serve on board the fleet during the action. After the action he rendered the wounded every aid in his power, continuing with them three months. And the Commodore seemed quite as solicitous for their welfare, as he could possibly have felt for the success of the battle.

Experiments and Observations relative to Vision; by Marshal Hall, M. D. of Nottingham, formerly Senior President of the Royal Medical Society of Edinburgh.

[From the Journal of Science and the Arts, No. X. for 1818.]

THE following detail is nearly confined to a series of observations and experiments made by myself. I have been induced to adopt this plan, partly from the difficulty of meeting with persons sufficiently interested in their results to prosecute experiments at once nice and difficult in themselves, and requiring a certain degree of the power and habit of abstraction, for their performance; but principally from a peculiarity in my own vision, by which I am enabled to give the subject of this paper a peculiar illustration.

The peculiarity of vision to which I allude, consists in an ability to adapt the *left* eye for distinct vision at shorter distances than the *right*, and in an incapacity for adapting the *left* eye for distinct vision at great distances, whilst the *right* eye possesses the power of adaptation for distinct vision at very considerable distances. The nearest distance at which a bright point is distinctly seen by the right eye is $4\frac{1}{2}$ inches; but by the left eye the point is seen with perfect distinctness at the distance of $3\frac{1}{2}$ inches. The same point is seen distinctly by the right eye at the distance of 17 inches; by the left it is seen indistinctly at any distance beyond 14 inches. With the right eye I distinguish each small branch and each leaf on a tree planted about thirty yards from my window; with the left eye these objects are seen in the most indistinct and confused manner. A distant light seen distinctly, or as a point nearly by the right eye, appears magnified into a large star to the left. The distant object seen thus indistinctly by the left eye, immediately acquires distinctness by the use of a concave lens.

A number of experiments have convinced me that, in myself at least, ordinary vision is performed principally by one eye alone, the left eye being chiefly employed and adapted for distinct vision at short, and the right eye, at long distances;

whilst the axis of the other eye is merely directed to the object, in order to prevent the confusion and double vision which would arise from the different direction of the two eyes. In proof of this observation I may observe, that when the eyes are directed to a distant object, as the tree before my window just mentioned, any *intervening* object, placed within certain limits with respect to distance, and seen of course double, appears *indistinct* to the *right* eye, but perfectly *distinct* and with a well defined outline, to the *left*. On the contrary, when the characters on a printed page placed at the distance of about eight inches from the eye, are observed, whilst the point of a pen-knife placed at the distance of six inches is seen single and distinctly by both eyes, each word and line is of course seen double, and the *right* part of the double image, or that seen by the *right* eye, appears distinct, whilst the *left* side of this image, or that arising from vision by the *left* eye, is seen indistinctly and obscurely.

When the eyes are fixed on a distant object, and an intervening object placed also at a considerable, although at less distance, is observed, it is seen nearly distinctly by the *right* eye, and less distinctly by the *left;* and there is a particular intervening distance at which it is seen equally indistinctly by both eyes. The same remark applies, *mutatis mutandis*, to the experiment in which the characters of a printed page are placed at the distance of eight inches from the eyes, and observed whilst the eyes are fixed for single and distinct vision at a shorter distance; if the less distance be nearly eight inches, the characters of the printed page placed beyond it, are seen either almost distinctly by the *left* eye, or equally indistinctly by both eyes.

These remarks appear to show that, in myself, as the right eye is endowed with a longer, and the left with a shorter sight, so, in observing near or distant objects, the left or the right eye is principally employed, and most adapted for distinct vision, whilst the axis of the other eye is directed to the object, in order to obviate the double vision which would take place were this axis allowed to take any other direction; I

may therefore be said to *look* at the object with both eyes, but to *examine* it with one only.

Having made this statement respecting the condition of my own eyes, and of their different capacity for adapting themselves for distinct vision at different distances, I now proceed to the detail of some experiments and of some cases of vision, in which the object is not only seen indistinctly and with an undefined margin, but also *fringed with the prismatic colours.*

In the first place I may observe, that in the cases of *indistinct vision* already described, if the object be opaque and well defined in itself, its borders are manifestly tinged by a decomposition of the rays of light. This fact, observed in general in the observations and experiments already described, is evinced still more distinctly in the following manner.

If both eyes are fixed, adapted for single and distant vision, at the distance of eight feet, and if an intervening object *within* the distance of about six inches, or *beyond* that of about twenty inches, be glanced at, the latter object is seen indistinctly and bordered with the prismatic colours, by *both eyes*, but in a different degree and in a different manner by each. But if, in this experiment, the intervening object be placed beyond the distance of *six* inches and *within* that of twenty, the *right* side of the double image, or that seen by the *left* eye, is distinct and free from colours; whilst the image induced by the impression of the light on the *right* eye, appears indistinct and fringed as before. By three other gentlemen, the more general observation has been made, that, whilst the eyes remain adapted for the single and distinct vision of a more distant object, a nearer one, a word in capitals, on a neatly printed page for instance, is observed to be bordered by the prismatic colours from a decomposition of the rays of light.

In these experiments a straight line on a printed page becomes doubled, presenting the appearance of two light blue lines inclosing a line or space of a brightish yellow colour; a dot becomes a small circle of light blue having a centre of yellow; an *o* becomes three concentric rings,—of blue, yellow, and blue; and if two *o*'s be viewed nearly together, as in the word GOOD, the light blue borders are seen to coalesce at

the parts which approach each other, in the manner of two penumbræ, and to give origin to an appearance of a deeper blue.

These experiments have been diversified in the following manner. The eyes have been fixed on an object placed near them, so as to see it singly and distinctly. They have then been glanced towards another object, such as a word on a printed page, placed at a greater distance. The latter object is of course seen double; the *right* side of the double image, now induced by an impression made on the *right* eye, is distinct and free from colours; the *left* is indistinct and fringed with the prismatic rays. The three gentlemen before alluded to, observed the appearance of coloured fringes in general, whenever the eyes were adapted for distinct vision at a near distance, and glanced at a printed page or other proper object placed somewhat beyond the former.

Having thus ascertained that, when the eyes were glanced at a well defined object, situated at a different distance from that at which they are at the moment adapted for distinct vision, whether *greater or less*, the rays of light are decomposed in their passage to the retina; a set of experiments were next made by properly placing concave or convex lenses, or plane, convex, or concave mirrors, with respect to the eyes and the object viewed, so as to vary the degree of divergency of the rays proceeding from them. When the object is seen distinctly by the eye alone, it is seen indistinctly and fringed by the decomposition of the rays of light, when viewed by means of any of these instruments, the conformation of the eye remaining unchanged: and *vice versa*, when seen distinctly by means of any one of these instruments, it appears indistinct and coloured without them.

I have observed, that in myself there is a certain distance with regard to each eye, and different for each, being *greater* for the *right* than for the left, at which an object cannot be made to appear fringed with colours by attempting to fix the vision at a point *beyond* it. Beyond this distance the margins of a small object cannot be seen distinctly by either eye; by the *left* they are seen indistinctly and slightly fringed with colours; with regard to the *right*, the distance alluded to is too

great to allow of a small object being examined with sufficient minuteness.—There is in the same manner, a certain short distance with respect to each eye, and *less* for the *left* than for the *right*, at which an object cannot be made to display the fringe of prismatic colours by endeavouring to fix vision at a still smaller distance.—The distances just alluded to, are the *limits* of distinct vision for each eye respectively.

It would appear from this view of the subject, that whenever the eye is glanced at an object situated at a distance different from that at which the eyes are adapted for distinct vision, it produces the appearance of prismatic colours, by decomposing the rays of light and leaving this dispersion without connection. In distinct vision, on the contrary, the decomposition of light appears to be accurately connected, so as to leave no appearance of prismatic colours. In distinct vision the eye appears to be perfectly achromatic; in the cases of indistinct vision which have been described, it appears to have lost its achromacy. What is the rationale of this phenomenon? Before I offer any conjectures in reply to this question, I wish to make a brief statement of some additional observations on the subject in general.

It is well known that, *cæteris paribus*, the pupils are smaller when the eyes view an object placed at a near, than at a greater distance. This fact is also observed when the eyes are adapted for distinct vision at these distances respectively; and when an object at a greater or less distance, than that at which the eyes are fixed for distinct vision, is glanced at, as in the preceding experiments, the conformation of the eyes remaining the same, not only is the mutual disposition and relation of the humours different, but the size of the pupil is also different from that which is proper to the eye when adapted for distinct vision at the distance of this object,—being less in the former and greater in the latter case.

This circumstance may have an influence in inducing an unconnected dispersion of light, as will be further noticed hereafter. At present I wish to add another remark which may be found to throw some light on the same point. An object is seen smaller by *one* eye than by *both;* in myself by the

right than by the *left;* and it is seen smaller when the eyes are fixed for distinct vision at a distance *greater* or *less* than that at which the object is placed. In the first case the pupil is seen to become larger; in the second, the right eye is known to be of less refractive power; and in the two last instances both the size of the pupil and the conformation of the eye are changed,—the pupils being larger and the refractive power of the eyes less, in the former case, and the reverse in the latter.

From this view of the subject it would appear, that a certain size of the pupils and a certain co-adaptation of the humours of the eye, are necessary for distinct vision, for securing the object viewed from a fringe of the prismatic colours, and for insuring its due apparent magnitude. In further confirmation of this view, some experiments were made with the application of the extract of belladonna to the eyes, the general result of which I proceed to state. The sight is rendered larger, as has been stated by other experimentalists, and it is no longer perfectly achromatic:—a pen, for instance, cannot be mended at all, as indistinct and coloured vision is induced by bringing the object near enough to the eye to admit of its being seen distinctly in the ordinary state of the eye; but the eye is assisted by a convex lens, and a person naturally short-sighted is enabled for the time to dispense with the use of the concave glasses,—and the vision becomes distinct and free from colour, partly on closing one eye, but still more on viewing the object placed even still nearer, through a small perforation in a card; but the indistinctness of vision and the dispersion of light are again induced by bringing the object viewed still nearer to the eye. Distant objects are also seen indistinctly and coloured, a dark coloured object having appeared to three persons who have performed this experiment, to have been tipt and fringed with purple.

There is a certain distance at which an object is seen tolerably distinctly with both eyes, under the influence of the belladonna; at a nearer distance the object appears indistinct and coloured to *both* eyes, but becomes distinct and colourless when viewed by *one* only; at a still nearer distance it is seen

indistinctly and coloured by one, but becomes distinct and free from colour, on interposing a card perforated with a small hole.

The convex lens and the perforated card equally prevent indistinctness and dispersion, but on different principles; the former converging, and the latter excluding, the extreme rays of the pencil of light.

I am indebted for the repetition of some of the experiments with the extract of belladonna, which deserve to be further prosecuted, to Dr. J. Davy, and Dr. A. Fyfe; to whom, after an interval of five years, I now beg leave to return my best thanks for their friendly assistance.

After this detail of experiments, it may not be wrong to conclude this Paper by the following observations and queries, as they may induce other experimenters to prosecute the subject.

It is still a matter of dispute, whether the human eye be perfectly achromatic. If any dispersion of the rays of light in their course to the retina, in ordinary vision, do in reality occur, it is in so limited a degree as to occasion no inconvenience. Those physiologists, therefore, who consult the *sense* alone, are of opinion, that the achromacy of the eye is perfect; and it has been attempted to explain this achromacy on the principle of the construction of the achromatic telescope, which, indeed, it is supposed to have suggested. But the idea that the humours of the eye, are so co-adapted, that the dispersion produced by one is corrected by a contrary dispersion occasioned by the other, is probably erroneous. In the achromatic glasses, the dispersion induced, by a convex lens, is remedied by a similar but contrary dispersion effected by a concave lens,—or, at least, the *principle* thus stated is secured. In the construction of the eye, however, the rays, in their course to the retina, appear only to undergo *successive convergencies*, at least by *refraction;* and consequently the degree of dispersion is also augmented successively, at each transition of the rays of light from one humour to another.

There is a part of the eye, however, the action of which has not perhaps been *fully* ascertained.—The iris is supposed to regulate the quantity of light admitted to the retina, and in

vision at near distances, to exclude those rays which would otherwise fall with too great obliquity on the crystalline lens. But are there not other effects of the iris, not sufficiently adverted to, in the inflection and dispersion of the rays of light at the edges of this part of the eye?—and may not these effects be similar to the operation of the concave lens, in the achromatic eye-glass? A small perforation in a card induces an inflexion and a dispersion of the rays of light which pass through it; may not the finely fringed edge of the iris induce these changes in a still greater degree? Those coloured rays of light which are most refrangible, are also the most inflectible. Now when the light is intense, or when any divergent rays of light strike the eye, and the eye is so conformed as to induce great convergency of the rays by refraction, and, consequently, when the dispersion of the light must be great and very obvious, the pupil is then most contracted, and the inflective and dispersive effect of the iris, greatest. May not this effect of the iris *counteract* the dispersion of the rays of light induced at their refraction by the humours of the eye? And may not this operation of the iris thus insure, in ordinary vision, the achromacy of the eye?

On this supposition we should conclude, that whenever the disposition of the humours of the eye, and whenever the size of the pupil, was not in just proportion mutually and relatively to the intensity and direction of the rays of light, an unconnected dispersion of the rays of light would occur, and the eye would cease to be achromatic. Is not this in effect the case, in the experiments which have been detailed in this Paper, in which a manifest uncounteracted decomposition of the rays of light actually occurred?

Case of a Child aged six months, who swallowed a double-bladed Knife without Injury.

[From the Journal of Science and the Arts, No. X. for 1818.]

FEW subjects are more interesting, than the contemplation of the wonderful manner in which the human frame accommodates itself to the various violences to which it is subject: compression upon the brain; the effusion of fluids into the pericardium, thorax, and abdomen; a musquet ball or other extraneous body in the midst of muscle, &c. all may remain a considerable length of time, without necessarily proving destructive: the human stomach is daily exposed to severe trials by the glutton and the drunkard, and daily it evinces its power of contending against such attacks, although it ultimately falls a sacrifice to their repetition or continuance.

If we are surprized at the efforts it is capable of in such instances, how much more must we wonder at those remarkable powers of adaptation, by which it is sometimes enabled to remain uninjured, when such substances as nails, pins, knives, &c. are swallowed by accident.

The painful and ridiculous feat of the Indian jugglers in passing a blunt piece of iron, under the name of a sword, into their stomach, which certainly contributes to render them short lived; and the instances we have of men actually swallowing knives to the number of 12 or 13, for a reward of spirits, or wine, do not come within the intention of these observations: they are meant chiefly to apply to those cases where foreign substances have been inadvertently swallowed.

In the Transactions of the Royal Society, cases are recorded, of knives being swallowed by adults, which forced their way through the coats of the stomach by producing inflammation, &c. or were removed by incision: we have also many histories of nails, padlocks, knives, &c. being swallowed without producing fatal consequences; but I am not aware of any case being recorded where a knife remained so *long* in the stomach of so *young* a child, as in that of which I now give

the particulars; and which, on that account, deserves to be preserved, if it has not already been communicated by the very respectable persons who, with myself, were witnesses to the facts.

CASE.

March 16th, 1802. A child of Jonathan White's, Southgate, Chichester, about *six months* old, had a small double-bladed knife, about two inches and a half in length, given it to play with. On the return of its mother to the room, she sought in vain for the knife, in all parts of the cradle in which the infant was laying: the child expressed some uneasiness at the stomach, from which the mother concluded it had swallowed the knife; the bowels were kept lax by the use of castor oil; and the fæces soon began to grow black. The child took no food, but milk; seemed often very uneasy in its stomach, and had slight febrile indisposition; yet it continued to look well, and was sufficiently fat.

May 24*th.* The shortest blade was discharged by the bowels; the back of it very much corroded, its edges being ragged, uneven, and saw-like: the rivet was entirely dissolved. The general state of the child's health, as stated above.

June 16*th.* The child, after being for a day or two more than usually uneasy, and rejecting every thing offered as food, brought from its stomach, in vomiting, one side of the horn handle about two inches in length, very much softened and bent double: a small bit of iron was passed a few days afterwards by stool. He frequently expresses great pain in his stomach and bowels, and starts much when asleep; has retained no nourishment for three days, and now looks much emaciated.

July 8*th.* The child more emaciated, takes little food, and unless when quieted by a decoction of poppies expresses more pain, continually writhing. Its bowels are lax, and the stools have a black appearance, and the abdomen exhibits externally a degree of inflammation. His pulse is soft and moderate while asleep; the skin feels rough; has voided nothing since the horn handle.

July 24*th.* To day he passed a bit of iron, which was about

half an inch in length, of a wedge-like shape, much corroded, and full of holes, and appearing to have been the large blade.

August 11*th*. The child has been in a convalescent state for the last fortnight, grows fatter, and looks much better; has been more quiet, although he has not slept much; the decoction of poppies has been omitted for some time past; the pulse full and strong; sucks more heartily, and now eats sopped bread three or four times a day. Yesterday and to day it has been more uneasy: about five o'clock in the evening vomited up its milk, together with the back of the knife, 2½ inches in length, pointed, and corroded at one end; the *other* nearly perfect, and *first* presented itself at the mouth; soon after, it vomited the other side of the horn handle, softened, the edges uneven, and dissolved. The child was much exhausted by its efforts, and soon fell asleep. The stools are some days of their natural colour, and sometimes black.

Dec. 20*th*. The child is now in perfect health, remarkably robust, and has not experienced a day's illness since August.

The Notes from whence I have taken the above particulars were made at the moment by Mr. J. N. Shelly, now a surgeon in the army, who was at that period my senior, and whose observations I can corroborate most fully.

Whether we look on this Case, as proving the possibility of so large a substance as a knife remaining so many months without material injury, in the stomach of so young an infant, or whether we consider the state in which the separated parts of the knife, at distant intervals, came away, it affords equally curious and useful matter for contemplation. It shows the remarkable power possessed by the gastric juice, even in so young an infant, of acting upon the metal, by which the rivets of the knife and the sharp edges of it were dissolved, and the life of the individual saved.

Manifold are the precautions which the adult takes, to preserve his health and to guard against accidents; *he* is capable of explaining the nature of his sufferings, readily takes the

most nauseous drugs to subdue disease, and submits to severe pain to obviate the effects of accident; but the infant cannot describe its feelings, cannot be treated with certainty, and will not endure restraint to effect a cure of the consequences of accidents; how bountiful, then, is Providence, in guarding it from the accidents of birth, by rendering its bones flexible, in restoring union of fractures by the rapidity with which callus is secreted, and in enabling the stomach to meet so successfully, such calls upon the solvent powers of its juices, as are exemplified in this Case.

W. H. BANKS, *Surgeon, Royal Navy.*

Ryde, Isle of Wight, May 8th, 1818.

History of the Excision of a Portion of the Ribs and Pleura; by M. RICHERAND, Principal Surgeon of the Hospital St. Louis.

[From the London Medical and Physical Journal, for October, 1818.]

M. MICHELLEAU, of Nemours, for the space of three years, laboured under a cancerous tumour in the region of the heart; the extirpation of which was performed by a surgeon in the neighbourhood in the month of January. On removing the first dressing, a bloody fungus appeared in the centre of the wound, which, although cauterised daily, rapidly increased. A second operation was tried; the parts were excised more deeply. After having exposed the ribs, the surgeon cut down even to the pleura; new fungosities however appeared, and increased, notwithstanding repeated cauterisation, by means of which their removal was attempted. In despair, from the want of success after such painful operations, the patient came to Paris towards the end of March, with a determination to undergo any suffering, with the hope of being delivered from a horrible evil, and of escaping an apparently certain death.

At this period, an enormous fungus arose from the wound; it was brown and soft, exuding an abundant reddish sanies, so

fœtid that it was impossible to remain a quarter of an hour with the patient without renewing the air of the apartment: the pains, nevertheless, were moderate; there was no colliquative perspiration or diarrhœa. In this state of things, it was determined to cut away that portion of the ribs from which the cancer originally took its birth. I did not conceal from the patient the probability that I should be obliged to remove a portion of the pleura: he did not hesitate to submit to the operation, the serious nature of which he was fully able to appreciate.

On the 31st of March, I proceeded upon this bold undertaking with the friendly assistance of my colleague, Professor Dupuytren, and by other persons who gave me their co-operation. I began by enlarging the wound, giving it a crucial form; I thus laid bare the sixth rib, which appeared swelled and rough for four inches in length, with a blunt-pointed bistoury, whose point I conducted along its upper and lower margin; I cut the intercostal muscles; then, with a little saw, I divided the bone at the two extremities of the diseased portion, and removed it from the pleura by a spatula. This I effected with an unexpected facility, in consequence of the thickening of the pleura beneath the bone, which became manifest in the sequel of the operation.

The seventh rib was discovered in the same extent, isolated and detached in the same manner, but with much more difficulty and slight laceration. The pleura then appeared evidently diseased; a thickened fungus giving rise to the tumour which occupied the space between the two portions of the ribs which I removed. The cancerous structure prolonged itself above the sixth rib, so that the membrane appeared diseased for the space of about eight inches square of its extent. Not to remove this, would have left our operation incomplete. Each of the assistants provided himself with the means of arresting the hæmorrhage we expected in an alarming degree from the section of the intercostal arteries. I cut the pleura with curved scissars; and, whether the section performed by this instrument (which acts by pressing rather than incision) occasioned the retraction of the vessels, or whether their calibre had been

diminished by antecedent cauterisations, not a drop of blood flowed. The external air at this moment rushed rapidly into the chest, and threatened immediate suffocation. This I endeavoured to diminish, by covering as speedily as possible the chest, surrounding the opening with a compress spread with cerate; over this I placed a large and thick pad of lint, and the whole was confined by a moderately tight bandage. The anxiety and difficulty of breathing were extreme during twelve hours after the operation; the patient passed the entire night sitting in an erect posture; towards the morning, sinapisms, applied to the soles of the feet and the inner part of the thighs, relieved the respiration; the pulse became stronger, and the strength of the patient encreased. The only liquid or nourishment allowed was an infusion of linden flowers and violets, mixed with a little orange-flower water, and sweetened with syrup of gum arabic.

Three days passed in this manner. The fever was moderate, but the oppression deprived the patient of sleep: the first dressing was removed ninety-six hours after the operation. The pericardium and lungs had contracted an adhesion with the circumference of the quadrilateral opening, *a sort of window made* in front of the heart; the adhesion happily was not complete between the pericardium and the lung from the sixth to the twelfth day; by this means, an abundant flow of serum came from the chest each dressing, probably not less than a pint (English), half-a-pint (French), in the twenty-six hours. On the thirteenth day, this serosity, produced by the inflammation of the surfaces, ceased to flow; and, on the eighteenth, the adhesion was complete between the lung and pericardium; the air immediately ceased to enter into the wound; the patient could lie on his side; the appetite and sleep were entirely re-established. The wound diminished rapidly, and presented a most favourable appearance; on the twenty-seventh day after the operation, the patient returned home, with directions to have the part well protected when the cicatrix was completed.

I did not suffer the opportunity to escape me of demonstrating anew the perfect insensibility of the heart and pericardium: the contact of the fingers to these organs was not perceived by

the patient. The pericardium in man during life is so transparent, that the heart is as readily distinguished as if it were under a perfectly diaphanous glass; so much so, that we sometimes thought the envelope was wanting. This transparence is wanting in the dead body; and, in this respect, may be compared to the cornea of the eye, which becomes obscured and opake at the approach of death.

A large opening, with loss of substance, made in the parietes of the chest, not being necessarily followed by suffocation, or by dangerous inflammation of the thoracic viscera, we might, in a case where the individual labours under dropsy of the pericardium, make an opening in the front of the heart; an opening which would permit not only the evacuation of the water, but radically to cure the disease by the production of adhesive inflammation of the surfaces, by means similar to those employed for the cure of hydrocele. This may appear a rash enterprize; but how many operations, reputed impossible fifty years back, are now followed by the most brilliant success.

On the Dangers of Dissection.

By M. Percy.

[From the New Medico-Chirurgical Journal for October, 1818.]

The accidents to which the Anatomist is liable in the prosecution of his studies may be divided into two classes: those resulting from the putrid gases extricated from the dead animal matters, and acting on the system generally; and those from inoculation of a septic principle, in wounds.

1. Cullen had long ago observed, that anatomical students enjoyed excellent health, in general, notwithstanding their being so much among the exhalations from dead bodies. Professor Bosquillon in one season dissected nearly 600 bodies, of all ages, sexes, and conditions; and states, that of five hundred pupils who passed from six to eight hours daily in dissecting, three only contracted disease from thence, and but

one died. It is very different with them in their pathological investigations. Out of one hundred pupils employed in hospital service, sixty were seized with hospital fever. But we are not to infer from these premises, that no danger attends the dissection of bodies. A well-known and melancholy example will prove the contrary. Dr. Chambon, in order to demonstrate the liver and its appendices, laid open the abdomen of a subject considerably advanced in decomposition. A horrible gas immediately issued forth, and nearly overwhelmed the demonstrator and four others. One of these, M. Corion, fainted away, was carried home, and died in sixty hours! The celebrated Fourcroy, who was also present, would, it is supposed, have shared the same fate, had it not been for an exanthematous eruption which was strongly out on him at the time. Messrs. Laguerenne and Dufresnoy remained long ill, and the latter was never restored to health afterwards. The Professor escaped best, although he proceeded on with the dissection. In the night he had a fever, which ended in a copious perspiration towards morning, and left him free from complaint.

At Dijon, in 1773, the accidental opening of a coffin in which a body had been six weeks buried, affected 114 people dangerously, and of whom 18 died. Many individuals have perished from the escape of animal gases of this kind; instance the grave-digger of Montmorency. We shall not recount what passed during the evacuation of the Cemetery of the Innocents, where, among others, Thouret contracted a fever that nearly terminated his existence.

But, fortunately, these instances are rare, and we see thousands of Anatomists enjoy good health among the corpses in all states of putrefaction. Who has dissected more, or prosecuted pathological anatomy more, than our venerable colleagues Tenon and Portal, who are blessed with a green old age? Look also at Walter, Mascagni, Scarpa, Sœmmering, Pelletan, Deschamps, Laumonier, Chaussier, Boyer, &c. who have spent nearly half their lives among dead bodies, and yet promise a happy longevity.

It is said that Claude Perrault fell a sacrifice to the dissection of a putrid camel; and that Taren shared the same fate

from demonstrating a human body. We may add, that the memorable Bichat would now have been living, had he not given himself up too much to dissection and macerations of morbid parts. Indeed, we see students daily destroyed by too enthusiastic a pursuit of anatomical studies.

2. But it is from inoculation of dead matters that the great danger is to be apprehended. Dr. Chambon relates, that having pricked his middle finger with the sphænoid bone of a skull that had been long in maceration, he was soon afterwards seized with the most intolerable pain, and inflammatory swelling of the fingers and hand, and with a number of acute and uneasy sensations, which he compares to those of the most violent gout. He experienced, in 1810, a similar train of accidents, from dissecting a body while there was a slight excoriation of the middle finger. Constitutional symptoms of great violence supervened, with disturbance of the mental faculties, great irregularity of the pulse, and extreme debility.

It has been long observed, that one of the most striking phenomena attending the accession of plague and other pestilential fevers, was a peculiar mental despondency, and disturbance of the sensorial functions. The very same takes place in the inoculation of septic poison in dissection, as was almost fatally exemplified in the person of the illustrious Corvisart, in 1786. This distinguished ornament of the profession pricked his finger while inspecting a dead body. Presently the whole arm swelled to an enormous size. Desault was obliged to make repeated and deep incisions in the tumefied parts, which Corvisart bore with considerable firmness, although he had experienced the peculiar mental despondency appertaining to the disease, even to *despair*.—" Circonstance qui affligea plus vivement les temoins assidus de sa triste situation, que tous les autres ravages qu'avait produits le virus inoculé."—Finally, however, the skill of Desault (whose friendship for the patient did not arrest the salutary course of the knife, or prevent him from acting the determined surgeon), triumphed over the effects of the poison, and restored to health our beloved colleague.

In these accidents, the train of symptoms is not always

equally *painful* and dangerous. I knew a student, who, having cut himself while tracing the nerves on a subject which he had kept for some weeks, died, in three days, in a state of the greatest debility, but without experiencing any pain, although gangrene occupied the whole arm. In other instances death has taken place at a much earlier period. It was probably in this way that Professor Leclerc perished in thirty-six hours, after feeling the pulse of a patient ill with malignant fever. His finger was excoriated, and the sick man's arm was covered with perspiration. Perhaps, however, his death might be owing, as in the case of Corion before mentioned, to the *pulmonary* absorption of a deleterious gas from the diseased body.

M. Chambon states, on the authority of several historians, and on the testimony of the President De Thou, that the Peruvians, animated with just vengeance against the Spaniards, dipped their arrows in the sanies flowing from the putrifying bodies of their unfortunate comrades, in order to render the wounds of their oppressors more certainly and more speedily fatal.

M. Huzard observes, that no carcases putrify so quickly, and emit so much dangerous exhalation, as those of herbivorous animals, as the horse, the ox, &c. He has seen numerous fatal instances of this poison among the veterinary students, when they happen to wound themselves in dissecting these animals, even within three or four days after death.

Treatment. We may here observe, with the celebrated Fabricius Hildanus, that it is not the virulent matter of poison, such as it appears to the eye, which is so quickly absorbed, and proves so rapidly fatal. It must be some subtle principle contained in it, and which eludes the sight. This view of the subject leads to the surest mode of arresting the evil, viz. either by removing the part, or destroying its organization, so that the process of absorption may be prevented. It is the cautery, either actual or potential, that the best anatomists of the present day rely on. As the wounds of dissection are generally small, a red hot needle will usually be sufficient. But, as these wounds are sometimes made by needles, or the points of hooks, it is not so easy to apply the cautery to their bottoms.

Here we may take a lesson from mechanics; who, when they prick their fingers or hands with pointed instruments, immediately throw a little oil on a piece of burning coal or charcoal, and hold the wounded part over the smoke, which cauterizes the wound completely.

For several years past, the precept and example of Professor Chaussier have been adopted in the anatomical schools of Paris; viz. each student keeps constantly in his pocket a small phial of liquid butter of antimony (muriate of antimony), and whenever he wounds himself in dissecting, plunges the point of a little wooden pencil into the caustic, and instantly cauterizes the puncture or wound. It is dangerous to wait till the actual cautery can be got ready. We ourselves always recommend the *strong nitric acid*, where the wound is tortuous, or made with a sharp pointed instrument, as this liquid immediately penetrates through every part of the puncture, and completely disorganizes its parietes, and renders them incapable of taking up any part of the septic principle.

When unfortunately the poison has taken effect, we know of no *specific* means of checking its progress, and are obliged to combat the symptoms on general principles, for which no rule can be laid down. It is to be hoped, however, that the prudent precautions of the Parisian schools will be imitated in those of Great Britain; where we know, from painful personal experience, that dissection wounds are too much despised and neglected; or at best but washed clean, and touched with nitrate of silver, which is by no means an effectual cautery.

SELECTED REVIEWS.

An Essay on the Symptoms, Causes, and Treatment, of Inversio Uteri; with a History of the Successful Extirpation of that Organ, during the Chronic Stage of the Disease. By W. NEWNHAM, Esq.

[From the London Medical Repository, for October, 1818.]

THE main object of the present work is to discuss a most momentous question, namely, whether any circumstances can justify the excision of the womb? and the affirmative reply to this question is grounded upon the successful issue of a case which is detailed in the pages before us. A single case, however, remarkable and important as it may be, is not *in se* sufficient to constitute a book; and Mr. Newnham has, therefore, taken occasion to introduce other considerations, both of a physiological and practical nature, into his treatise, which commences with cautions and directions respecting placental delivery, and terminates by remarks on the several theories that have been proposed to explain the still unsolved enigma of conception and generation.

We have already allowed the recorded operation to be creditable to the judgment and ingenuity of the operator; and we are disposed to express ourselves in the same terms of approbation generally as to the record itself. As a literary and medical production, however, Mr. Newnham's treatise is not without its faults. We have no quarrel with authors for the occasional introduction of untranslated quotations; but when a book, professing to be original and English, is nearly half made up of French extract, we cannot help inferring that the wish to inform is too much tinctured by the desire to display. Our au-

thor's own composition too is occasionally loose and ungrammatical; and if his tract should arrive at a second edition, a fate which we heartily wish it, Mr. N. will do well to overlook and correct such sentences as the following:—

"The detail of the modern operations of Dupuytren, Surgeon at the Hôtel Dieu, has not yet been fairly *detailed* to the public, notwithstanding the success which has attended several *instances.* Enough, however, is known from the *proceedings* of Dupuytren and Osiander, *to be assured* that a considerable portion of the uterus may be extirpated without great difficulty."—p. 25.

The medical fault, so to express it, that we find with Mr. N.'s production, is this; that in the detail of his case he has neglected to mark the degree of constitutional re-action by the usual indications, viz. pulse and other functions.

But in spite of faults both of omission and commission, the tract before us is, we do not hesitate to say, worthy a place in the library of every medical practitioner; and we sincerely desire, as well as confidently expect, to hear of its extensive circulation, more especially among the practitioners of the obstetric art.

Our author is first naturally led to consider the causes from which an inversion of the uterus most commonly proceeds; and on this head we shall give his remarks at length, because, however familiar they ought to be with every one who professes the practice of midwifery, we have reason to fear that there is not sufficient attention universally given to the precepts which they teach.

"The most frequent cause of inversion of the uterus, is the imprudent management of the placenta, and rude attempts to hasten its expulsion, by pulling at the chord; but this accident may likewise be occasioned, when the patient is encouraged to make vehement voluntary efforts to bear down, at the moment when the fœtus is about to be pushed into the world: it may be produced by the child being suddenly born, while the woman is in an erect posture, and consequently the excessive capacity of the pelvis will be a predisposing cause of the disease; and it may arise from carelessness in the management of

delivery, when the funis is either preternaturally short, or is rendered so by its being coiled round other parts of the body. These causes will all operate more powerfully in proportion as the uterus may be in a torpid or atonic state*.

"From the recital of these causes, it is evident, that the inversion of the uterus will be most successfully prevented, by acting upon the simple scientific principle of waiting the return of uterine pain, before employing any extractive force for the removal of the placenta; and of attempting its delivery, *when this is immediately necessary*, rather by exciting uterine contraction, than by any misdirected pulling of the chord. The safety of the patient consists only in a state of contraction of the uterus, and this, therefore, is the object most earnestly to be sought after by the practitioner. The other causes of this accident will be obviated by moderating the efforts of the woman, during the last stage of labour, and waiting quietly for pain, after the head is born, instead of effecting the delivery of the trunk by manual assistance; by confining the patient, in every instance, and especially when the pelvis is more capacious than ordinary, to an horizontal position, from the moment that the head begins to press upon the perinæum; by insisting that she should not be moved off the bed, during that too frequently unfortunate process of "*putting her to rights*," as it is falsely termed; and by attending carefully to the state of the umbilical chord, enlarging its coil, where this is possible, so as to pass it over the fœtal head, or to allow the body to slip through it, or tying and dividing it when this is impracticable. The extreme shortness of the chord should always be guarded against, by taking care, in every instance, to keep the belly of the fœtus close to the external parts of the mother. And if these simple precautions be but kept in view, and diligently acted upon, an atonic state of the uterus would scarcely ever be met with. Uterine atony arises from previous excite-

* The too great projection of the sacro-vertebral angle has been mentioned as a cause of inversio uteri, in an ingenious modern work, which really forms a great curiosity in the history of obstetrical literature. Vide "Mémorial sur L'Art des Accouchemens, par Madame Veuve Boivin, Maitresse Sage-Femme, &c." à Paris, 1817.

ment and overaction; moderate that action, and the power of the organ will be preserved, and its state of inertia almost unknown.

"But if, notwithstanding an attention to these precautions, inversion of the uterus shall have taken place, it is desirable to effect its restoration at once, and consequently it is highly important to become early acquainted with the existence of the disease; and as this can always be ascertained satisfactorily by the most simple means, it is extraordinary that a precautionary measure of this kind should ever be forgotten. *It has often happened, that the death of the patient has taken place from hæmorrhage, and the cause has never been discovered, till, on examination, postmortem, the uterus was found inverted in the vagina. In every instance, therefore, after the delivery of the placenta, one or more fingers of the operator should be introduced into the vagina, in order to ascertain that the uterus is not inverted.* If this simple process were attended to, chronic inversion of the uterus would be known only by description."

When by misconduct or mishap this accident of inversio uteri have taken place, the best mode of operating its reduction is the next question to be determined on; if the placenta still adhere to the protruded mass, some authors have recommended its removal prior to any attempt at reduction, upon the ground that such removal would, by diminishing the bulk of the inverted fundus, facilitate the return of the womb to its natural position. Our author, however, justly condemns this advice, and urges the necessity of the reduction of the placenta, together with the uterus; properly remarking, that "thus returning the placenta while it remains attached to the womb, and its subsequent judicious treatment as a simple retained placenta, will have a good effect in bringing on that regular and natural uterine contraction which is the hope of the practitioner, and the safety of the patient." Mr. Newnham is right too, in counselling the operator not to have recourse to any mechanical or intermediate contrivances, but to trust to the cautious introduction of the hand, well smeared with some fatty substance, and its *gentle* and judicious employment. If the accident be, as it ought to be, ascertained immediately, no

time must be lost in attempting the reduction in question; but if from its having existed some time prior to discovery, or from other causes, there appear to be a tense and inflammatory state of the protruded parts, so as to render their return difficult, it will be adviseable, first, "to reduce the inflammatory action by bleeding, according to the circumstances of the patient, by warm fomentations to the abdomen, by the local warm bath, or by soothing injections; by keeping the bowels gently open, and by an appropriate diet of barley water, water gruel, &c. And when this first indication has been accomplished, then attempt to re-invert the uterus."

But if both this first, and if we may so say, second opportunity of effecting the reduction be permitted to pass by, the case becomes established as one of chronic inversion of the uterus; and then all treatment, excepting that of excision, will be merely palliative. In this state of things, it will be of course expedient to remove and obviate as much as possible every source of irritation; to keep the bowels and the urinary bladder constantly evacuated; to pay great attention to the preservation of cleanliness in the parts; to use gently astringent lotions; and to employ pessaries according to circumstances. But none of these remedies can lay claim to any radical or specific effect; and now, therefore, the great question presents itself, Is the practitioner justified in hazarding the operation of removing the inverted womb? The recent accounts from France, of sections of portions of the womb, as well as operations of a more remote period, together with successful instances of the Cæsarian section, and cases of recovery from rupture of the uterus, are cited by our author, for the purpose of proving, that this organ may be subjected to considerable violence and irritation without producing fatal symptoms: and having so far established this assumption by the aid of accredited testimony, he proceeds to its more complete confirmation, by detailing the history of a case in which the uterus was extirpated by himself with complete success. The case, as the title of the book states, was one of the inversio uteri: it followed upon a natural labour, in which the funis was remarkably short, and the placenta adherent; much hæmorrhage succeeded to its removal; a retention

of urine supervened; *but no examination, per vaginam, was made for several days*, and it was regarded by the practitioner in attendance as a tumour which had been growing for some time, until Dr. Davis was requested to see the patient, who immediately ascertained both its nature and its source. Under these circumstances she went into the country, and became a patient of Mr. Newnham; and he, "fully assured that existence could not be protracted another month, if something were not effectually tried for relief, and well acquainted with the fact, that portions of uteri, if not the entire uterus, had been removed successfully, resolved upon the operation. On the 13th of April, Mr. N. applied a ligature of very strong silk, as high as possible upon the neck of the tumour, taking care to avoid including any part of the os uteri, by carrying the silk considerably within its orifice." On the next day the ligature was tightened, and again on the 15th; but Mr. Oke, who acted in conjunction with Mr. Newnham, having visited the patient about five o'clock in the afternoon of this day, and finding her in much pain, slackened the ligature; and it was suffered to remain thus slackened till the 18th, when the surgeons, "confirmed in their opinion of the practicability of removing the tumour, and of the nature of the disturbance, as arising rather from *spasm and uterine irritation than from visceral inflammation*, agreed to tighten the ligature," which was borne exceedingly well; and thus did they daily continue to tighten the ligature, and to give opiates and cathartics, according to circumstances, until the 6th day of May, on which day the statement appears as follows:—6th. No pain since the last report. Our patient's health is a little improving. When the ligature was tightened this evening the tumour became detached, and I found, to my no small satisfaction, that it was as I had believed, an inverted uterus*.

This woman is now living and doing well, and in a letter from Dr. Davis, which Mr. N. inserts in his tract, and which

* It may seem extraordinary that there could have been any doubts on this head after the examination and decision of Dr. Davis; but of that decision Mr. N. was not apprized till after the operation had been performed.—Rev.

bears the date of March 10, 1818, we meet with the following expressions respecting her present condition. "She is a living evidence of the general fact of what has been done for her. I was most keenly disappointed, when she refused me permission to examine her the other day. I saw one of her mammæ in a state of fine health and plumpness; and she assured me, (and I have not the smallest doubt of the fact, from the earnestness of her manner, and the apparent sincerity of her character,) that the privileges of matrimony are as gratifying to her at the present moment, as during any period of her married life. I presume that she may still be in possession of ovaria."

Mr. Newnham, aware that a single case, however successful, is not sufficient to establish a rule, proceeds, in the subsequent sections of his work, more particularly to point out authorities for extirpating the womb, to detail the consequences which, sooner or later, must almost inevitably result from permitting the inversion to remain without any radical remedy, and to urge that the extirpation of polypi, which all agree to be desirable, is as likely to be followed by unfavourable results as the excision of the uterus itself. But, in the first place, he makes a few observations on the uncertain marks of distinction between an actual inversion of the organ and polypous excrescences from its internal surface. It is well known to those who are at all conversant with these subjects, that the form of the tumour, polypus being broad at its base, and attached by a narrow pedicle, the degree of sensibility which it displays, polypus being, comparatively with the uterus, without sensation, and the smooth and polished surface of the former, compared with the rough and irregular circumference of the latter, are the main points of diagnosis, as stated by authors: that these, however, and all others are, occasionally, fallacious, is sufficiently evident, from the fact, that the most discerning and experienced are sometimes at a loss to determine upon the actual nature of the protruded substance; and the previous history and circumstances of the patient are, after all, for the most part, the surest guides to discrimination between the one and the other disease. In order to prove this

uncertainty, we have, as before hinted, a vast mass of evidence, both from British and Foreign professors, to mention even the names and opinions of whom would be quite inconsistent with our limits.

"On the whole, therefore, (concludes Mr. N.) we infer the difficulty and uncertainty of the diagnosis; and we proceed to consider the consequences of inversio uteri."

These are, briefly, when the disorder has become chronic, that "the female, for the most part, either drags on a miserable existence for a number of years, or her life is cut short by the constant drain." The immediate consequences are likely to be a sudden dissolution, from the attendant hæmorrhage. It is now, then, that we are naturally made acquainted with the authorities in favour of the operation: which, however, at the best, are rather of an equivocal cast, and in one of the most accredited of the continental publications we meet with the following sceptical inference in relation to the particular under discussion. "These alleged cases of extirpation of inverted wombs were doubtless, in the majority of cases, mere excisions of polypi*."

"But, (says our author,) in opposition to these doubtful conclusions, *the removal of so large a portion of the uterus as the preparation exhibits, in a young woman, during the menstruating part of her life*, and *while the uterine vessels were constantly pouring out a very large secretion; scarcely three months from the time of her delivery; and in a subject the most irritable and unfavourable for such an operation, must attach a greater degree of credibility to some of the previous histories of similar success;* must dissipate every doubt as to the *practicability* of such an operation; and must prove at least that in such an otherwise hopeless state, the surgeon is justified in attempting to afford permanent relief."

The subsequent section of Mr. Newnham's book, as before

* We have been favoured by Mr. Chevalier with the sight of a preparation which consists both of the uterus and the vagina, and which parts were extirpated by him, and the patient did well. We believe that the particulars of this case are recorded in one of the numbers of the Philosophical Transactions.—Rev.

stated, consists in an endeavour to show that the extirpation of mere polypus is as likely to be attended with unpleasant consequences, as uterine extirpation, under favourable circumstances; and he finally aims at proving, that there can be no fear of extra uterine conception in cases where the uterus has been taken out, and the ovaria left entire; since the sympathetic theory of conception, advocated by Dr. Haighton, and which, if correct, might lead to such apprehension, although ingenious, is not true. This last portion of Mr. N.'s treatise is throughout well written, and the opposition to Dr. Haighton's assumptions, ably maintained.

So much for the book before us. It will be recollected by some of our readers, that, having announced our intention of analyzing this tract, some months since, we stated afterwards our reasons for delaying to fulfil such engagement. The fact is, that we were desirous to await the issue of another case, the termination of which, both from its nature, and the high character of the professional gentlemen concerned in it, would, we felt aware, either prove greatly in favour, or argue substantially against the several inferences of Mr. Newnham. That we did not do amiss in thus deferring the review, every reader will allow, after a perusal of the subjoined document; the publication of which will prove rather an advertisement than an anticipation of the more detailed account, which the writer has engaged to give in another work.

"In reply to your note of Friday, I have the pleasure of informing you that our patient is doing well. I have promised to draw up the case, accompanied by a few practical remarks, for the next publication of the Medico-Chirurgical Society. In the meantime, I can have no objection to your referring to it in any way that may serve to illustrate your review of Mr. Newnham's Tract.

"Mrs. Senior, of No. 16, Crescent, Somers' Town, was taken in labour of her third child, on the 7th of May, and was attended by a general practitioner, of many years' standing in his profession. The child presented naturally, and was expelled by the uterine efforts. The umbilical chord, however, was coiled round its neck twice; and, from being thus shortened, it

was put upon the stretch during the expulsion of the body, which became a cause of profuse hæmorrhage immediately after delivery. Upon examination for the placenta, it was found in the vagina, and removed without violence; but with very little abatement of the flooding. The inversion of the uterus, the real cause of the excessive discharge, was not, however, discovered till the third day after delivery, when the nature of the accident was recognized by my friend, Dr. Sims, who was then (10th of May,) consulted on the occasion. On the evening on the same day, at his suggestion, I was requested to meet him in consultation. The patient appeared at that time in a state of extreme exhaustion; her life was not worth twenty hours' purchase. In such a state, and so recently after delivery, she was obviously not a proper subject for an operation of any kind. We therefore agreed to recommend such a plan of treatment, and such a regimen, as appeared calculated to improve strength, and to replenish the system; and in case of her surviving the immediate effects of the accident, which was then extremely doubtful, we proposed, at some future and more seasonable opportunity, so far to entertain the question of extirpation, as to give it our best consideration. After this time, our patient suffered no considerable loss of blood, and she gradually recovered some little strength.

"In about seven weeks after the delivery, we met in consultation again. She then complained of a violent pain of the right inferior extremity, from the hip down to the foot. This pain was more or less constant and acute: it was, indeed, so distressing to her, that she seldom slept more than an hour (sometimes an hour and a half,) in the four and twenty. It was manifestly a cause of great irritation to her; and as it was not unreasonable to conjecture that it might depend upon the uterine displacement, we felt some hesitation in proposing, even now, any measure which might have the effect of greatly increasing it. We therefore proposed to wait a few weeks longer, in hopes that this extraordinary pain, which, however, was without tumour or redness, would wear itself out; promising that we would meet again in the course of a month to consider of something further for her relief. But before three

weeks were expired, we were requested to see our patient again, and urgently solicited to think of, or do any thing that might have even a chance of diminishing her sufferings.

"After guarding the event by a very cautious prognosis, and transferring a part of the responsibility to the parties more immediately interested, we came to the conclusion of attempting the removal of the inverted uterus by ligature. Being prepared with the necessary apparatus for this purpose, I applied it during this visit, in the presence of Dr. Sims, and Mr.——, the ordinary medical attendant of the family. This was on the 22d of July. During a great part of the process of extirpation, the pressure of the ligature occasioned extreme pain, and was accompanied by much constitutional irritation. The weather at the time was very hot, and bowel complaints, from that cause, universally prevalent, and our patient suffered exceedingly from an urgent diarrhœa. She was disturbed in this way every hour, and sometimes more frequently, for several days together. Having simply referred to this coincidence of the season, I confess that I am myself more disposed to attribute the great disturbance in the functions of the intestines in this case, to the action of the ligature, than to the high temperature of the atmosphere. However that may be, the effect was truly alarming, as our patient was brought by it into a state of imminent danger. During the earlier part of the process, no formidable symptom occurred; during the latter eight or nine days, the constitutional reaction was very great indeed; pulse ranging for several days between 140—156.

"On the 8th of August I found the ligature disengaged, and the tumour loose: pulse 108.

"During the action of the ligature, the pain of the foot, as the patient expressed herself, was numbed. This provoking pain has, however, harassed her a good deal since the extirpation of the womb. It is, however, gradually subsiding, and the patient is daily gaining strength. Upon the whole, I am of opinion, that the removal of the human womb is a very serious operation; not to be attempted in any circumstances; and, in fact, not to be considered as safe, excepting in most judicious and cautious hands. The particular facts of the case of Mrs.

Senior, when given in detail, will develope some difficulties and dangers to be apprehended, (and of course, if possible, to be avoided,) which have not appeared to come in the way of Mr. Newnham.

"If, then, I were asked, whether the human uterus, in a state of inversion, could be removed without risk, in any favourable circumstances? I should find it difficult to give a confident answer. On the other hand, I should not feel much hesitation, or fear to engage in the operation again in favourable circumstances. Moreover, I think that, in a case of increasing exhaustion from periodical losses of blood, or from a high degree of irritation, on account of the uterine displacement, the result of these two cases will leave no choice of duty on the part of the practitioner. This duty, however, would not devolve upon any practitioner; but exclusively on the competent; as the recovery of the patient would mainly depend on the constitutional treatment, and on the daily conduct of the local process, with a constant reference to the constitutional symptoms.

"I am,

"Your's faithfully,

29, George Street, Hanover Square, "D. D. DAVIS."
Sept. 13, 1818.

Topographie de tous les Vignobles connus, &c.; i. e. A Topographical View of all the known Vine-districts; explaining their Geographical Position, the Kind and Qualities of the Products of each, the principal Wine-trading Stations, the Names and Capacities of the Casks and Measures in use, the ordinary Modes of conveying them, &c. &c. accompanied by a general Classification of Wines. By A. JULLIEN, Author of the Butler's Manual, and Inventor of the Æriferous Tubes, and other Instruments for decanting and filtrating Liquors. 8vo. pp. 590. Paris. 1816.

[From the Appendix to the Monthly Review, Vol. LXXXIII.]

LEST this high-sounding title should excite a suspicion of *quackery*, we must apprize our readers, *in limine*, that the work

before us conveys a considerable portion of practical knowledge respecting the growth and commerce of wines, in correct and perspicuous language. As, moreover, in situations in which the temperature of the climate is inadequate to ripen the juice of the grape, or neglect or prejudice has prevented its culture, the inhabitants have usually had recourse to the more homely substitutes of cider, ale, palm-wine, &c., these accessories have also attracted M. JULLIEN's notice: so that his book may thus be said to present us with a descriptive catalogue of those fermented liquors which, under all diversities of latitude, and the restraints of law or religion, continue to exhilarate our social hours. It must, perhaps, be granted that they contribute, at the same time, to deteriorate the physical and moral condition of our species: yet still the vine has so *interwoven its branches* with our civil institutions, and *struck its roots* so deeply into our systems of agriculture and commerce, that he would be deemed a most rigid reformer who, if he could, would cancel its existence. At all events, its fruit is not only innoxious but grateful to the palate, and highly nutritious; and, if it furnishes a beverage that is too often perverted to unworthy purposes, we should not forget that the same cordial has revived the frame when sinking under languor and disease; that it is a less baneful, and more elegant, article of luxury than ardent spirits; and that, with the progress of civilization and refinement, its immoderate use becomes restrained by the sway of public opinion, and the influence of public manners.

The plan which M. JULLIEN proposes, and which, as far at least as France is concerned, he steadily pursues, is to define the geographical boundaries of the various tracts which he has had occasion to survey; to note the kinds and qualities of the wines for which they are distinguished; to assign to them their respective degrees of merit; to register the average annual quantity produced in each district; and to state the names and capacities of the vessels in which they are kept, the measures by which they are sold, and the depots from which they are distributed by means of water or land-conveyance. It may, perhaps, be fairly alleged, that the geographical indications are often unnecessarily minute; and, though the numerical returns of yearly

crops, produced within particular boundaries, *may* approximate to the truth, and certainly are set down with apparent confidence, we are seldom informed of the authority on which they rest. We must also say that the writer's divisions of wines appear to us both unphilosophical and incommodious; *genera* being deduced from *consistency* and *colour;* although he is perfectly aware " that wines which differ in colour may, nevertheless, be of the same genus in respect of consistency; and that *dry*, *sweet*, or *mellow* wines indifferently assume all tints.' Thus the two sources or principles of his generic distinctions are completely blended. Instances are also recorded, in the sequel, of the colour changing with age, while the virtue of the liquor remains unimpaired, or is even improved. His three principal species, again, are the *fine*, the *ordinary*, and the *common:* epithets which are equally unsusceptible of any very definite or permanent meaning; and the author himself is too conversant with his subject not to be sensible that the intermediate shades are numerous beyond description, the varieties of the vine itself probably exceeding two thousand, while other countless circumstances more or less affect every process of fermentation. For the purposes of popular instruction, therefore, it might be adviseable to reduce his aukward nomenclature to three great *classes*, the *dry*, the *sweet*, and the *intermediate*. We must add, however, in justice, that M. JULLIEN has explained the import of his different titles with so much clearness, as to obviate much ambiguity which might have otherwise ensued in the perusal of his work.

In his interesting exposition of the vineyards of France, the author might have spared his readers the formal delineations of those departments which either produce no wine, or yield that which is of a very inferior quality. Presuming that our readers, at least, would scarcely thank us for the sour grapes of Picardy, we shall introduce them, without farther preface, into Champagne and Burgundy.

The sparkling white wines, which are so generally and so highly prized, are chiefly procured from the neighbourhood of Rheims and Epernay; viz. at Sillery, Ay, Mareuil, Hautvillers, Pierry, and Disy. These are usually obtained from a mixture of the black and the white grape; the former chiefly con-

sisting of varieties provincially denominated *morillons* and *pineaux*, and the latter of the *plantes dorées* and the *épinettes*. The most esteemed red Champagnes are those of Versy, Versenay, Mailly, Saint-Basle, and Bouzy; which are denominated *de la Montagne*, and the *Clos de Saint-Thierry*.

" The grapes destined to the manufacture of the rose-coloured wine are gathered with the same precaution as those which are employed in preparing the white wine, and they receive the same treatment under the press: but they are previously plucked from the stalks, and lightly trodden in vessels appropriated to the purpose; in which they remain until the incipient fermentation, by dissolving a portion of the colouring resin, imparts to the must the pink tint that is wanted.

" In making this rosy wine, they have sometimes recourse to a liquor known in the country by the appellation of *Fismes-wine*.* It is extracted from the berries of the elder, which are boiled with cream of tartar, and then passed through a filter. A few drops of this liquor will communicate the rose-tint to a bottle of white wine, without altering its flavour or wholesomeness; yet, as this composition is extraneous to the wine, it would be desirable to dispense with it.

" The high price of the sparkling Champagne wines is owing, not merely to the quality of the wines selected, and the excessive attention which they require before they are in a marketable state, but also to the considerable losses and advances to which the proprietors and merchants, who speculate on the commodity, are liable; as well as to the capricious phenomena which determine or destroy the sparkling property. With regard to loss, the owners generally reckon on the breaking of fifteen or twenty bottles in the hundred, and the number sometimes amounts to thirty or forty. To this original loss of liquor and bottles, should be added the waste incurred at each separation of the wine from its precipitates, by *disgorging*†; an operation which they undergo at least twice before they are consigned to conveyance.

" As to those phenomena which determine or destroy the

" * Prepared in the town of that name, at six leagues from Rheims."

" † This is a process by which the lees of the bottle are removed and the wine left perfectly clear."

sparkling quality of this wine, they are quite surprizing and inexplicable: for the same wine, bottled on the same day, in bottles from the same glass-house, deposited in the same cellar, and placed on the same heap, sparkles at a given height in a particular direction, while it exhibits the same property in a much fainter degree, or is even quite dead, in another position, as near a door or under an air-hole. Some wines, again, which at first sparkle with the utmost vivacity, are observed to lose this property entirely on a change of seasons. The dearness of frothy wines, therefore, results from the combination of all these accidents; which are so various and so extraordinary, that the most practised dealers cannot always either foresee or guard against them.

" The quality of the ingredients employed in the manufacture of the bottles, and perhaps also the degree of heat to which they have been subjected, contribute to diminish or preserve the vivacity of the Champagne wines. We have been assured, that even the glasses used in drinking them may produce similar effects; and that, in some, all effervescence is arrested as soon as the wine is poured into them, while in others, filled at the same time, it is kept alive.* Hence we need not be surprized to find, in the same basket, bottles of which the contents sparkle with more or less briskness, and others which give no indication of such a property.

" Frothy wines should be bottled in the month of March that succeeds the vintage. The fermentation usually commences in the month of May, and continues throughout the summer; and it is particularly strong in June, during the flowering of the vine, and in August, when the grape begins to ripen. These are the periods at which the proprietors suffer most from the breaking of the bottles; when it is imprudent to walk through a well-stocked cellar without being protected by a wire-mask, by neglecting which precaution work-people have been severely wounded by splinters of bottles. The fermentation abates in Autumn, and serious accidents rarely occur in the second year."

" * It is probable that the glasses, which produce this effect, are those in which there is either an excess or an improper combination of alkaline parts; which, in that case, absorb the carbonic acid that is contained in the wine."

It has been observed, that the frothy quality of these wines is most generally manifested in seasons which have proved unfavourable to the complete maturation of the grape; the quantity of carbonic acid gas contained in the liquor being, apparently, in the inverse ratio of its spirit, or body; but, if the grapes happen to be slightly affected by frost, when almost at the ripening point, the wine obtained will unite in an eminent degree the qualities of strength and liveliness. In this last case, the cold, by closing the pores of the fruit, is supposed to intercept its insensible transpiration, and to concentrate its fermentable principles.

" The principal traffic in the wines of Champagne is carried on at Rheims, Avize, and Epernay. The last-mentioned town is advantageously situated in the centre of the best vineyards, and in a soil favourable to the establishment of good cellars; which, excavated in a rock of tufa, are spacious, excellently adapted to the preservation and improvement of wines, and as solid as if they were supported by arches of stone. Those of M. *Moët* are especially remarkable on account of their extent, and form a sort of labyrinth from which it would be difficult to escape without a guide. The walls are lined to the height of six feet with bottles tastefully arranged; which, depositaries of the precious juice of the best vineyards of Champagne, await in this abode orders for their departure to distant countries. Few travellers pass this way without going to see these cellars; and even sovereigns have had the curiosity to visit them."

M. JULLIEN includes Burgundy and Beaujolais in the same chapter, notwithstanding their geographical difference, because the wines of both have common qualities, and are sold, not only by the same measurement, but often under the same name. On a like principle, he has been induced to detach the *arrondissement* of Châlons-sur-Saône, and to consider it in conjunction with the department of the Côte-d'Or; so that the districts particularized in his eleventh chapter are, the department of the Yonne, that of the Côte-d'Or, including the *arrondissement* of Châlons-sur Saône, the remainder of the departments of the Saône and Loire, and the *arrondissement* of Villefranche, in the department of the Rhone.

" The extent of territory allotted to the culture of the vine,

since the Revolution, is remarkably increased; many of the proprietors having converted low and marshy grounds into vineyards; others having applied manure to the sloping surfaces, or invested them with new soil, in order to obtain more abundant crops; while others, again, have substituted young stocks for those which had grown old, and even those of an ordinary for those of a superior quality. Persons who purchase the produce of these degenerated vineyards, or who are furnished with the wines of a bad year for those of a good, suppose that the wines of Burgundy are no longer what they formerly were: but this opinion is founded on certain abuses, which are equally practised in all other wine-countries: and we shall see, in the course of this chapter, that, if Burgundy produces a much greater quantity of common wines than it did thirty years ago, the number of its good crops, so far from having diminished, has been augmented by the addition of many hills, of which the products equal, if they do not surpass, both in quality and quantity, those which rapacity has been enabled to destroy or defame."

The Burgundy wines have been commonly ranged under three distinct denominations; namely, those of *Lower Burgundy*, of *Upper Burgundy*, and of *Macon*. The first are grown in the department of the Yonne, which is formed of Lower Burgundy and a portion of Champagne; the second are peculiar to the Côte-d'Or,comprizing the *arrondissemens* of Châlons-sur-Saône, Dijon, Beaume, Chatillon-sur-Seine, and Semur; and the third are the products of the department of Saône and Loire, formed of a part of Upper Burgundy, and divided into the *arrondissemens* of Macon, Autun, Charolles, Louhans, and Villefranche. These three sorts of wine have also their appropriate qualities. Those of Lower Burgundy have, in general, less alcohol, aromatic flavour, and odour, than those of the upper parts of the province: but they are more lively, and retain, for a considerable length of time, that faint degree of harshness which characterizes claret. Those of the upper districts accord with the French ideas of perfect wine, possessing all the requisite qualities blended in the requisite proportions. The Macon varieties, again, have an inferior perfume, a

coarser unctuousness, and a considerable degree of consistency, without being clammy.

In some parts of Lower Burgundy, particularly in the Auxerrois, the vine appears to have been cultivated when the Romans invaded Gaul. Some of the existing plants, which are mostly of the varieties called *black* and *white Pineau*, *Tresseau*, *Rençain*, and *Gammé*, are ascertained to be upwards of a hundred years of age. The last, however, though it yields an abundant crop of fruit, deteriorates the quality of the wine: and the author says that "it would be desirable to renew the edict of Charles IX., which prohibited the planting of the *infamous Gammé* in vineyards of the first order."—Among the celebrated red wines of this district are those of Danemoine, Tonnerre, and Auxerre; and, among the white, those of Tonnerre and Chablis, the latter including Le Clos, Valmur, Vaudesir, &c.

The red grape produced in the department of the Côte-d'-Or, for the purpose of obtaining the first-rate wines, are the *Noirien* and *Pineau;* and the white, also of the first quality, are the *Chaudenay*, *Melon blanc*, and *Chasselas*. The best red wines which the district yields are the *Romanée Conti*, *Chambertin*, *Richebourg*, *Clos Vougeot*, *Romanée de Saint-Vivant*, *Tâche*, and *Saint-George;* and the white, of the first quality, are those of *Puligny* and *Mont-Rachet*.—The best red grapes cultivated in the department of the Saône and Loire are the *Bourguignon* and *Chanay;* and the best white are the *Chardonnat* and *Bourguignon*. To the first class of red wines, furnished by this department, belong those of the *Windmill*, *Torins*, and *Chenas;* and, to the first of the white, those of *Pouilly* and *Fuissey*.

M. Jullien has detailed, with much specialty of local nomenclature, the great diversities of Burgundy wine of the inferior classes; and we have only to express our regret that he has not bestowed equal attention on the modes of preparing those which are most in request.—In his systematic exposition of the wines of Franche Comté, he makes the following observations on those of Arbois.

"These wines would be much more highly prized, and would more frequently grace the banquets of our capital, if they were more carefully managed; and if the proprietors, following the

example of the Champenois, would deliver them freed from all particles capable of affecting their transparency. With this view they should be fined, drawn off, not bottled till perfectly limpid, and allowed to repose a sufficient length of time, in order to insure them against muddiness; or, if any deposition should take place, it should be removed by disgorging*; an operation which the Champagne wines often undergo several times before they are delivered, and which renders them perfectly clear, and preserves them so for many years; whereas the Arbois wines are rarely clear, and soon form large depositions which alter their transparency and flavour. The owners and dealers in this tract of country do not sufficiently estimate the strength and frothy qualities of their wines; some of them frothing too much, and breaking the bottles, while others are not sufficiently sprightly, or are even destitute of the sparkling property, and must be kept a long time before they acquire the good qualities of still wines. These defects proceed, perhaps, from the nature of the wine. Though I am ignorant whether the necessary experiments have been made to ascertain this particular, I know that the Champenois have many difficulties to evercome, and that, in some years, they still suffer enormous losses by the breaking of the bottles: but their care and persevering activity maintain the reputation of their wines, which are the best of the sparkling kind known, as their white varieties hold the first rank among those of the still sorts.

Though the wines of Charente are of very inferior reputation for the table, they yield the most esteemed brandy in Europe: the grape from which they are obtained, called the *Folle blanche*, being far from grateful to the palate, and producing a white wine that is destitute of pleasant flavour, but is very spirituous. The brandy distilled from the red wines is of inferior quality. In good years, the white wine yields a fifth of its bulk in brandy: but, in bad seasons, nine, ten, or even eleven parts of wine, are required for one of brandy. The proprietors distil on their own premises; and the brandies of the whole department pass, in trade, under the denomination of *Cognac*.

"* For the manner of disgorging the sparkling wines of Champagne, see the Butler's Manual."

In the Lyonnais, we meet with the red wines of *Côte Rotie* and the sweet white wine of *Condrieux*, both unrivalled in their kinds. The former, which are produced on two shelving banks, have a strong body, combined with an exquisite vinous flavour, and a most agreeable perfume. They should be kept in the cask six or seven years, to acquire a sufficient degree of ripeness, and then bottled, when they are still susceptible of improvement for a number of years. The Condrieux sweet wine has no muscadine flavour, but a very balmy relish and odour. It may be kept for a long time, and assumes an amber tint in old age. Wine of a similar though inferior description is grown in the adjacent vineyards, and sold under the name of Condrieux: but we are not here informed from what sort of grape either the Côte Rotie or the Condrieux is produced.

The department of the Drome is noted for its red and white *Hermitage*, so called from a small district in the territory of *Tain*, in Dauphiny. The red is characterized by a strong body, a delicate vinous flavour, and a most pleasing perfume, partaking of that of the raspberry. In order to have it in perfection, it should be kept in the cask eight or ten years, according to the degree of the maturity of the grape employed; and, like the preceding, it still improves considerably in the bottle. The white is also a liquor of the first quality; very soft and unctuous, full of spirit, and of a fine essential odour. It may be kept for a long time, and becomes of an amber hue as it grows older. These delicate wines, however, are so scantily noticed by M. JULLIEN, that we entertain some doubts of his being particularly acquainted with their history.

Of the *Vins de Bourdeaux*, or various kinds of *Claret*, the extent and notoriety supply him with a far more copious theme, through the details of which we cannot presume to follow him. The red kinds, which figure in the first class, are those of *Lafitte*, *Latour*, *Chateau-Margaux*, and *Haut-Brion;* and the white in most request are those of *Graves*, *Dulamon*, *Pontac*, *Sauterne*, *Barsac*, *Preignac*, and *Beaumes*. The *travail à l'Anglaise*, or the process of rendering the pure native claret more vigorous for certain English palates, is particularly described: but the liquor which has undergone this manipulation is openly

sold as *worked wine*, and at an advanced price, on account of the waste incurred and the additional pains bestowed.

Languedoc is particularly fertile in excellent wines, but few of them, comparatively, are exported. The white and muscadine sorts of *Lunel* and *Frontignan* have, however, obtained merited celebrity.

" Next to the muscadine wines of *Rivesaltes*, those of Frontignan are reputed the best in the kingdom; being distinguished by their sweetness, strength of body, a marked taste of the fruit, and a most exquisite perfume. They improve with age, may be preserved for a very long period, and sustain land or water-carriage without injury. The vine-tract which produces them extends over a vast plain, gently inclined to the south-east. *Lunel*, the chief place of the district, at five leagues north-east of Montpellier, also produces excellent muscadine wines, the best of which are equally prized with those of Frontignan: they are more precocious, and somewhat more light and delicate, but have less body, a relish less distinctly defined, and sooner lose their soundness. This description of wine forms but a small portion of the produce of the Lunel vineyards, which yield an ample store of common red wines, that are almost wholly allotted to distillation."

The vineyards of Provence supply more varieties of the grape than any region of France: but this very circumstance seems to deprive its wines of any very decided or appropriate flavour, so that they are not generally much in request. The department of Vaucluse, however, furnishes the red wines of *Coteau Brûlé*, *Chateauneuf*, and *Sorgues*, and the muscadine wines of *Beaumes*, all of which rank in the first class; while the inspissated sorts of *Aubagnes*, *Cassis*, and *Ciotat*, especially when of mature age, are deemed by competent judges superior to the sweet wines of Spain, Italy, and Greece, and are by some considered as not inferior to Tokay.

Jurançon and *Gan*, both in the neighbourhood of Pau, in Bearn, furnish red and white wines that are greatly preferred to most which are produced in the same quarter of the country; the white Jurançon, in particular, being characterized by a delicate truffle-flavour: but they are surpassed by the white sweet muscadine of *Rivesaltes*, which is regarded by con-

noisseurs as one of the best liqueur-wines in Europe, and, when ten or twelve years old, may vie with the finest Malmsey.

In this very compendious report of the first part of the work before us, we have purposely refrained from touching on the numerous French wines of subordinate quality, with which the author has chosen to swell his descriptive catalogue; though it was already sufficiently protracted by his plan of recapitulating the names of places. If his commemoration of the inferior wines, however, be redundant, the information with which he furnishes us concerning some of the better kinds is occasionally deficient: at least, we should have attached more importance to his pages, if he had more frequently particularized the qualities of the soil, the management of the plants, the modes of conducting the several vintages, the average sale-prices of the different wines, &c. In some few instances, he ventures to hazard an observation on the chemical constitution of certain wines; though his general reserve on this interesting department of his subject would induce us to believe that he is a stranger to some excellent communications by *Chaptal*, and others, on the scientific principles of vinification: as well as to an ingenious paper, by Mr. Brande, inserted in the Philosophical Transactions of the Royal Society of London for 1811. The article *Vigne*, by *Dussieux*, in *Rozier*'s "Course of Agriculture," might also have been consulted with great advantage.

Practical Illustrations of the Scarlet Fever, Measles, Pulmonary Consumption, and Chronic Diseases; with Remarks on Sulphureous Waters, &c. By JOHN ARMSTRONG, M. D. London, 1818, pp. 448.

[From the London Medical Repository, for May 1818.]

WERE it possible for the merits of a writer to be reflected upon the pages of his reviewer, so that both author and critic should become in some sort identified, it would be the height of policy to commence, as we do, our analytical labours, by a

notice of the work before us. To say that Dr. Armstrong is an interesting writer, would be to make use of an epithet far from sufficiently expressive of the feelings with which we have just closed an attentive perusal of his present Treatise;—a Treatise which, we predict, will continue to be read and praised as long as a love shall last for the combination of scientific lore with classical taste. In saying thus much, let it not be supposed that we mean to convey any thing of an adulatory nature, or to commit ourselves to unqualified approbation: not as partial friends, but as faithful critics, have we examined Dr. Armstrong's volume; and before we proceed to the more particular survey of its contents, we shall offer one or two further remarks on what appear to us to be its faults and failings, as well as its worth and beauties.

In the first place, then, we would say, that the style of Dr. Armstrong, like that of Currie and Reid, is not seldom *too good.* We do not mean to institute any thing like a comparison between these authors, further than by just hinting, that the clothing which they all give to their thoughts, is occasionally so dazzling and so graceful, that we imagine we are contemplating beauty of a far superior order, while, in fact, our regards are fixed upon what is in reality of a very ordinary stamp and character; although, for example, every reader of taste must dwell with delight upon those pages of the author immediately before us, in which the preventives of pulmonary consumption are descanted on with a mastery of eloquence; we doubt whether the quantum of matter which they actually contain amounts to much more, than what in most hands would show itself to be mere naked common-place. Secondly, we would suggest, whether the excellent author now under notice, be not occasionally too wordy and diffuse. This, indeed, may be considered as a continuation of that charge we have just ventured to adduce; but by diffuseness in the present instance, is meant a want of logical concentration, and summing up, as it were, of his thoughts, in an aphoristic and recapitulatory manner. It is especially while perusing such pages, as Dr. Armstrong's, that the reader stands in need of something of this sort, as he is otherwise likely to be unresistingly carried on by the fascinations of his author's style, and thus cheated

into a kind of passive acquiescence with the author's postulata and principles. Now and then we meet further with prettinesses of expression, in which the attempt to produce effect is rather too conspicuous; as when the lancet is called "the right arm of medicine, and calomel the left:" these last drawbacks to perfection in composition are, however, by no means found in abundance; and we shall close these preliminary hints on the manner of the present writer, by extracting two or three of his sentences, taken almost at random, which may serve at once as specimens of the excellency of his style, and as an example of his mode of thinking on medical subjects:—

"On the great evils incident to man, an idea that nothing can effectually alleviate or remove them, is the most to be deprecated; for it wraps us in the cold undisturbed contentedness of apathy, when we should have been straining every nerve, and trying every expedient in the cause of humanity. Though so many ages have passed away, the world is only yet in the infancy of knowledge. Much of the information of ancient times was necessarily lost, for want of some means to diffuse and preserve it entire: but as the press now renders useful inventions and discoveries imperishable, the warmest anticipations of philanthropy and philosophy may be indulged with respect to the future."

A man who thus writes and thus thinks, cannot fail of being listened to and admired. One word further on the principles by which we have been actuated in confining our analytical department, for the present month, to a single author and a single book. Our apology, indeed, for so doing might lie in the especial merits of the work selected; but the truth is, that the analysis of the volume before us actually involves the discussion of three separate affections, all of which are of paramount interest to the medical inquirer; namely, scarlet fever, measles, and pulmonary consumption.

What is fever? Whoever may have given any share of his attention to the principles of medical nomenclature, will at once perceive, that in the naming of disease, the effect, or one of the effects of morbid action, is very often, by a kind of metonymical management, taken for the cause; or rather, that one prominent system of a disordered state is, as it were, seized

on and made use of as an identification of that state. Of this we have a notable instance in the application of the word fever; a word which, from being merely an enunciation, so to say, of one link in a long chain of morbid being, has come to stand in the form of a predicate to particular and distinct maladies. It must soon have been perceived, by observers of morbid phenomena, that the heat of the body is preternaturally increased, in several deviations, from the standard of health: this observation connected itself, in the minds of the observers, with a vague idea of causation, and thus a prominent condition or sign was made expressive of a cause; but, as the body's temperature is often equally augmented, under very many varieties of an obvious nature, in the actual interior state of the body, it became necessary to seek for epithets further expressive of such varieties; and thus the adjectives, nervous, inflammatory, bilious, putrid, and so on, came to be attached to the generic cognomen fever. But it will be obvious, that this term fever, even helped out by its respective adjuncts, is exceedingly vague and unsatisfactory; for the heat of the body may be preternaturally augmented by many causes of an opposite nature, and the induced state be thus widely different as to its actual essence. Suppose, for example, that an individual by violent exercise occasion an unusual heat in his body, we might, with propriety, term the induced state fever: but the term, in this last case, would announce a something very different from that condition which the word is employed for the most part, to characterize; since, although there is heat, there is not oppression; though there is excited, there is not perturbed action. But there are other means by which the body's temperature is raised above its ordinary standard; in which, nevertheless, the peculiar perturbed and oppressed feelings and actions do not display themselves as they do in those variations from health, which are usually allowed to constitute fever. When, for instance, a large organ of the body falls into a state of inflammation, it will not seldom be the case that the temperature of the whole body will, in consequence, be raised to a degree equal to the conditions above supposed; but still there is the absence of that peculiar something,—that oppression of the animal powers,—that "*languor cum arteriarum*

pulsu concitato," which denotes absolute fever. Of these animal powers we know that the brain and nerves are the organs and instruments: when, therefore, such powers are depressed or depraved, it is natural to look to something of change in these parts, as the actual cause of the induced change in the feelings and circumstances of the individual in whom they have taken place. The question then, as to the absolute constituents of the febrile state, would seem to narrow itself into the question of the brain's condition during its presence; and this state, say some modern authors, "with Plouquet and Clutterbuck at their head," is inflammation. But all parts of the brain's substance and coverings shall, at times, be the subjects of all kinds and degrees of inflammation, without the peculiar features of actual fever being necessarily present. Although, then, fever and inflammation of the brain may, and do often exist consentaneously, inflammation of the brain is not fever, neither is fever inflammation of the brain. Fever, in point of fact, is nothing more or less than a disruption of the connected movements of the animal frame, by which the balance of powers is overthrown, the laws of excitability are changed, and in consequence of which the ordinary exciting agents cease to display their exciting energy. This state widely differs from debility, since debility is properly a gradual reduction of a regular kind below the standard of health; it differs as widely from strength, since strength consists not only in vigorous, but in equal and orderly excitement; while the actions of fever are uncommensurate and perturbed. But, then, the pathological enquirer requires further to be informed of the actual condition both of nerve and blood-vessel, and of every constituent of animal organization which is necessary to the production of the state of the excitement just announced. Here properly commences the whole business of pathological investigation and dispute; and the difficulty of giving a satisfactory solution of the problem thus advanced, consists in our ignorance of change of action, as connected with change of function in the sentient organization. Obliged then are we, at least in the present state of anatomical science, to content ourselves with the ultimate fact, that some change has been operated by febri-facient powers upon the percipient organs;

but what that change is, we know not, nor do we get an iota nearer the truth by the invention of abstract terms, such as spasm. It is the second link in the chain that first becomes palpable; and the grand improvement in the pathological speculations of the present period consists mainly in this, that we confine ourselves to such inquiries as are obvious to our senses. Thus, observation and dissection will show us in what condition are the blood and the blood-vessels* in several febrile disorders, and it is a matter of notoriety that the bodies of individuals, who have died of what is nosologically regarded as one and the same disease, display widely different appearances in regard to the evidence of the blood's distribution. In one case, the veins of the stomach shall be found gorged with blood, marking that here had been the principal accumulation or congestion; in another, the blood-vessels of the brain shall obviously appear to have principally borne the burden and heat of the conflict; now the liver shall, as it were, seem to have sucked in a great portion of the circulating fluid; and now the lungs, the heart, the spleen, the kidnies, or the several membranes lining cavities, shall prove themselves to have been the organs or parts mainly concerned in this abstraction to themselves of so large a quantity of the vital mass. Fever, then, to recur to our original postulate of inquiry, is brought about by such an agency exercised upon the propelling power of the circulatory movements, as that these movements become irregularly displayed, i. e. with too much impetus in one direction, and too little in another; and accordingly as such impetus is precipitately withdrawn from one or another organ or part, do venous congestions take place. Venous congestions, we say, since the very suspension of due action in the part concerned, by the deprivation or withdrawing of the *a-posteriori* stimulus, produces this condition of partial plethora on the side of the veins; a doctrine which, if we are not mistaken, Dr. Armstrong has been the first clearly to conceive, and properly to expound. But fever is often accompanied, not merely by venous congestion, but actual inflammation.

* It were more correct, perhaps, to say the state of the blood's distribution merely; for the condition and action of the vessels, both in fever and inflammation, are still questions, *sub judice*.

In what way is this last effect brought about? We might commence our reply to this question by propounding another, viz. What is inflammation? And here we think that the author before us is less precise and satisfactory in his pathological views. If we understand him aright, he seems to infer, that the same vascular plethora on the side of the arteries, which would produce congestion in the veins, constitutes, in the former case, actual inflammation; but the whole arterial system of a given organ might be brought into its utmost limit of increased action, or, to accommodate ourselves more to the author's views, increased distention, without being productive of positive inflammation; to constitute which, there must be what the schools formerly termed *error loci*, and perhaps, as Darwin maintains, the formation of new vessels. That topical inflammation, however, does often take place in fever, is sufficiently evident; and it would appear to arise from the very opposite condition of the nervous and vascular system of the part from that which induces congestion: the *a-posteriori* rush from the arteries is here too great, instead of being too little; not merely more blood is forced in and through vessels than is consistent with their natural diameter, but the vessels destined to convey the colourless particles of the vital fluid receive and transmit the coloured, a new and morbid set of actions is established, new vessels are formed, new secretions are poured out, and the whole order, both of the arteries and veins of the part, becomes widely different from that of mere congestion or distention.

It may, perhaps, be said, that we are wandering wide off our mark, in thus discussing the pathology of fever generally, while reviewing a volume which treats only on one particular species or kind of fever. The fact is, however, that though the book, now the subject of animadversion, professedly treats of scarlet and another eruptive fever only, its able author himself goes much more minutely into the question of febrile production and essence, than in his former volume on typhus; and here we must take occasion to refer to another principle of medical nomenclature, somewhat different from that we have above alluded to. While, in the cognomen fever, the word is meant to express the effect, or rather is taken and applied from

a conspicuous and prominent effect; the expression, scarlet fever, still, indeed, confines itself to appearances and symptoms, but is made to imply something more specific and precise in the way of cause; and here a door is opened for the discussion of that question, by which the medical world has recently been so much agitated, and upon which we could have desired to see the able mind and masterly pen of Dr. Armstrong employed in either one or the other of his recently published volumes. The distinction, we may just remark, between contagious and infectious diseases, appears to consist in the one being of a more specific and peculiar kind than the other: thus, what is called scarlet fever, will, whatever be the place in which it breaks out, and whatever the internal circumstances of the recipient, possess something of a determinate and distinctive character; while the cause producing typhus, if it could be brought to act in Constantinople, or the West Indies, would, in these places, under particular circumstances, be the cause of plague and yellow fever; or, in other words, typhus is to be ranked among the νουσήματα ἐπιχωρια of Hippocrates, viz. among those maladies which are dependent for their production and modification upon time, and place, and circumstance, while the scarlet fever is a disease of every latitude, of every season, and of every clime. They are both, however, contagious; and that the one appears less so than the other, is in consequence of the dependence just adverted to. We say that it would have been gratifying to us to have seen the question of contagion and infection discussed by Dr. A——, since the discussion might have been introduced into either his former or his present volume with great propriety, since much that is false in this particular has gone abroad into the world, and since any thing, bearing in any way on the subject of fever, would come from Dr. Armstrong with authority and effect.

On the disputed subject too of the periods of fever, the doctrine of critical days, and the question, Whether fever is ever actually cured by the interference of art, should the medical practitioner fail of success in his endeavours to cut short the disease, as it is termed*, by vigorous measures in the onset of

* The negative of the above proposition, respecting the curable nature of fever, has been argued for by a modern writer with much ingenuity.

the complaint? on all these particulars we should have listened with eagerness to the sentiments of the author before us. His volumes, we are confident, will require to be re-edited; and in his second editions it would gratify us to find that our hints on these heads had been attended to.

Fever, whether excited by cold, or filth, or confined air, or mental depression, or irregularities in diet, or epidemic constitutions of the atmosphere, or, lastly, by a specific contagion, as in the case of scarlatina, observes, in some measure, the same laws as to the actually induced state of the circulatory powers: accordingly, Dr. Armstrong, as in his former volume on typhus he divided the disease into simple, inflammatory, and congestive, so he pursues the same classification of the kinds, or rather the degrees of scarlet fever. By the simple grade of fever, would our author mean to designate that constitution of the malady, in which, either from a less degree of virulence in the morbific power, or from certain conditions of the recipient, or from early treatment of an active and judicious nature, the arterial actions and nervous congestions do not become permanently established, but every thing takes a temperate course, and the associate actions which constitute health are, sooner or later, gradually restored? What is meant by the congestive form of the malady may be easily inferred from the remarks already introduced on fever's pathology; and the author's notions may also have been gathered respecting the precise meaning which he attaches to the term inflammatory, as marking a degree of febrile action. In our minds, however, as already hinted, Dr. Armstrong too indiscriminately registers mere arterial action under the head of actual inflammation, which last state appears to us to be of a more complicated nature, and less recent induction in idiopathic fevers, than he, as well as other authors, seem to suppose. Before we introduce extracts from the description which our author gives of these different modifications of scarlet fever, we shall further use the freedom of suggesting whether the modifications themselves are not chalked out with a little more minuteness and precision than bed-side observations will confirm and ratify. Would not the clinical student, after perusing the pages of our author, imagine that he should always be able accurate-

ly to mark down in his note book whether fever were simple, inflammatory, or congestive? Modern writers have much less about them than formerly of these assumptions and divisions, but still the necessary discrepancy between book descriptions and bed-side observations is scarcely, perhaps, insisted on even by teachers of the present day with that particularity which the case demands. Beside, indeed, the varieties of scarlatina as constituted by the different degrees of congestion and inflammation, Dr. A—— assumes in common with other pathologists, or rather, he adopts from these writers the three divisions of the malady into simplex, anginosa, and maligna. This division he introduces in the following words:

"The scarlatina, simplex, anginosa, and maligna, are the three species into which most authors have divided this disease; and certainly the first of these adjunctive terms is sufficiently exact; but the last are objectionable, since they do not mark the proper character of the two remaining species. With respect to the epithet anginosa, it denotes a symptom more or less common to all the modifications*, and therefore cannot be correctly applied to one in particular. As for that of maligna, it expresses nothing distinct concerning the nature of the disease, and confounds under one species some striking varieties, while it also involves an hypothesis as to the presence of something hostile to the principles of life, and may thus mislead by its received import. Yet, to avoid innovation, I shall adhere to the old nomenclature, and to remove obscurity, shall, at the same time, point out those peculiarities of the complaint not included in our common classifications; and though little or nothing new may be adduced, relative to the first two species, it is hoped that some additional information will be communicated on that which is deemed malignant."

As many of our readers will not have an opportunity of seeing the work itself, as it is important for the young practitioner

* This is an important remark in a diagnostic and practical point of view, since, when there is any doubt in the mind of the young practitioner, in reference to the precise nature of the cutaneous eruption, he may, for the most part, be convinced that the disorder is scarlatina, should there be much affection of the throat, in combination with the redness of the surface.—Rev.

especially to familiarize himself with the most characteristic features of the disease under remark, and as our author's statement of the peculiarities of scarlatina constitute the principal portion of the mere descriptive part of his volume, we shall make no apology for extracting the whole of what he has given us as a description of the two first varieties of the complaint:—

"Scarlatina Simplex.—It is not unknown to me, that Sydenham and De Gorter have noted the scarlet fever under so mild an aspect, that it terminated spontaneously without any inflammation of the internal fauces. But so far as my observation has extended, the inflammation of the throat constantly attends the cutaneous affection: it even takes place in some cases without that affection, and, according to my experience, may therefore be fairly received as an essential part of this fever. The inflammation of the throat, however, is slight in the simple scarlet fever; that form of the disease which is usually ushered in without much rigour, or disturbance of the stomach; though uneasiness of the head, restlessness, and lassitude, are almost invariably present, with weakness of the pulse, and paleness of the face. These symptoms may continue from two to three or four days, and, designating the primary stage of the disease, are succeeded by an universal excitement. It is commonly within the first thirty or forty-eight hours of this second stage that the scarlet efflorescence comes out, first upon the upper, and then over other parts of the body; finally colouring the skin somewhat like the shell of a boiled lobster, and diffusing itself over the mouth, tongue, and throat. Early in the second stage some soreness or fulness is most frequently felt in the throat, and the voice is not quite so clear and sonorous as ordinary. The skin also, from the preternatural flow of blood towards it, soon becomes not only morbidly sensible to the touch, but rough, dry, and hot; though the temperature of it perhaps rarely rises above 103° of Fahrenheit's scale. The lips are now of a more vivid colour than natural; the face flushed and rather fuller; and the tongue whitish in the middle, but red round the edges. Except in children under two years of age, who are always very irritable, the pulse is seldom much above 110 or 120 in the minute; though during

the greater parts of this stage it is increased in tone as well as in velocity. For the most part the thirst is not very urgent, yet the functions of the stomach are always impaired, and the alvine evacuations often somewhat darker than common. The pyrexia slightly remits in the morning, and rising in the course of the day, mostly reaches its highest point about bed time, when a slight delirium sometimes occurs. But, as Heberden justly remarks, there is no form of fever in which such an occurrence is of so little consequence as in this; for as it proceeds from the exacerbations, so it almost always disappears on the approach of the remissions. The second stage, or that of excitement, seldom continues longer than four or five days, when it is followed by one of slight collapse, in which the pyrexia disappears, the pulse becomes slower and softer, and the skin more relaxed. About the time that the excitement gives way, the efflorescence begins to recede, and fades entirely away about the seventh day; after which there are commonly more or less scurfiness and desquamation of the cuticle.

"Scarlatina Anginosa.—The scarlatina anginosa is more strictly an inflammatory form of the disease, and attacks nearly in the same way as the simple scarlet fever. But to greater degrees of chilliness, headach, and restlessness, in the first stage, are superadded a marked oppression of the præcordia, and prostration of the voluntary powers, with nausea, retching, or vomiting. The efflorescence most commonly appears on the skin within the first three days from the developement of the excitement, and about the same time redness and swelling are observable on the internal fauces; the patient complains of stiffness in the neck and jaw, and fulness as well as soreness in the throat, particularly when he attempts to speak or to swallow. The pulse is throughout quicker than in the simple scarlet fever; the thirst greater; the tongue drier, and more florid at the edges; the uneasiness in the head more distinctly felt; the stools more unnatural and bilious; the heat of the surface more elevated, often rising to 106° or 108° of Fahrenheit's scale, and even sometimes higher. The evening exacerbations are also greater, and they often induce a species of delirium, in which the patient, particularly if left alone, or in the dark, talks much to himself. In this modification of the disease, as

in most others, the affection of the throat is dependent in a great measure upon the fever: if the latter should kindly abate, from the first four or five days, there will be seldom either sloughs or specks about the tonsils; but merely an increased secretion of mucus, some of which often adheres to the part, and looks like an ulcer. But when the fever continues longer, or runs higher, specks generally form about the tonsils, which are finally converted into superficial, ash-coloured sloughs. Even when such cases are favourable, the throat is loaded with a glutinous mucus, and the pituitary membrane often much inflamed; but neither the discharge of the throat nor of the nose is of an offensive or acrid nature. The superficial sloughs in the throat begin to separate as the fever declines, which it frequently does about the eighth day, and then the sores beneath heal rapidly. It sometimes, however, happens that, instead of ending so favourably, very dangerous symptoms arise in the progress of the fever; and in most of these examples the sloughs grow fouler, and the discharge from them and from the nose becomes very acrid. Painful indurations of the glands in the neck, tenesmus, or diarrhœa, are then not uncommon, all of which seem to be connected either with the irritation or with the foul secretions of the fauces. Under these circumstances, patients sometimes gradually sink into an irrecoverable collapse; or expire from an attack of bronchial inflammation, or from gangrene of the throat. In other unfavourable instances, however, the danger is not confined about the throat, but rather proceeds from the brain, which is, sometimes, greatly affected in the stage of excitement; and the patient at last dies comatose, about the end of the second week. Again, in cases of a still different character, where the brain is less seriously disordered, symptoms of abdominal disease arise in the stage of excitement, and by degrees become most urgent. At first there are only slight pain and soreness in some part of the abdomen, with a quickened pulse and respiration; but the pain and soreness gradually increase, and at length are attended with vomiting, eructation, fulness of the belly, and general restlessness. In six, seven, or eight days, the abdominal soreness and pain abate or disappear, while the pulse grows more rapid and feeble; the breathing more anxious; and the vomiting more

urgent. Cold clammy sweats, and an universal collapse now speedily supervene, and are the immediate precursors of death.

The term malignant, as hinted above, was first introduced into medical nomenclature under the notion of a particular something in the complaint, *ab origine*, hostile to the powers of life; and the word has been, as it were, held out as a beacon to warn practitioners against depletory measures in this state of things, however great may be the apparent necessity for them. This feeling has certainly been acted on beyond the warranty of fact, but it may be questioned whether the reaction against our former unfounded fears may not be carried, in the present day, to the extent of too much boldness. But we must not anticipate what will immediately fall to be said under the head of treatment, and we shall now present the reader with an abridged account, from the author, of this variety of the complaint:—

"The fever is intense, and proceeds with impetuosity. Specks, therefore, are soon visible on the inflamed fauces: at first they are of a whitish, afterwards of a dingy ash, and lastly of a brown or blackish colour. But in the most formidable cases, the disease ends mortally before the throat passes through these gradations; and in general, it is only when the fever is lengthened beyond the fourth day, and there are ill conditioned sloughs, with an acrid discharge from them, and from the nostrils. In some instances, however, I have seen deep and extensive sloughs cast off on the fourth or fifth day of the excitement, and in others have known patients expire before they separated. Soon after the stage of excitement is developed, the pulse is rapid and vibratory; there is frequently a very great determination of blood to the brain, which speedily produces redness of the eyes; intolerance of light; throbbing pain of the head; tinnitus aurium; watchfulness; and confusion of the mind, or delirium. To these symptoms an overpowering but imperfect stupor often succeeds, now and then broken by loud screamings, or by fits of extreme violence or fretfulness. In some instances the head is less powerfully affected throughout; and during the whole stage of excitement, the patient complains most of pain, soreness, and heat, in some of the abdominal regions, accompanied with tension or fulness

of the belly; short, quick, anxious breathing; very rapid, small pulse; and considerable irritability and flatulency of the stomach. In other cases, neither the head nor belly seem so very decidedly affected as above described; but the greatest oppression appears to exist in some part of the pulmonary system, especially in the trachea. But whatever parts may be disordered, the stage of excitement soon begins to give way, and is followed by that of collapse, in which the heat is diminished; the general powers fail; the pulse becomes weaker and quicker; the skin laxer; the tongue fouler; and the respiration more laborious—in a word, those symptoms called putrid and malignant are now conspicuous. In this last stage patients sink under convulsions, vomiting, or suffocation, according to the organ principally affected. But in whatever mode death approaches, there is always, in the beginning of the disease, a marked and unequivocal stage of general and high excitement, to which the appearances of extreme debility and putrescency of the last stage may be clearly traced as mere consequences. It is this acutely inflammatory form of the scarlet fever, that Huxham, Heberden, and Cullen have denominated the most malignant; their descriptions distinctly showing, that very great excitement existed in the commencement, whatever degrees of putrescency might accompany the close."

Having enlarged upon this form of scarlatina with a good deal of accurate observation, but to a length beyond the possibility of our limits to follow him, Dr. Armstrong, proceeds in the following manner:—

"Having thus endeavoured to give a brief exhibition of the pathology of the inflammatory forms of the scarlet fever, I shall pass on to the consideration of the congestive varieties, which will enable me to advert more distinctly to what has been called the scarlatina maligna.

"There are strictly two congestive forms of the scarlatina maligna, one in which the re-action is partially and irregularly developed, and the other in which it is almost entirely suppressed. The lines of distinction between these two forms being very obvious, it is only proper that they should be separately described. The first, therefore, shall be denominated the irregular, and the last the regular congestive form.

"The irregular congestive form is the least dangerous, and more protracted of the two; yet it often proves fatal, either from some defect or delay in the treatment, or from the peculiarity of its nature. It comes on much after the manner of the preceding varieties; but the first obscure stage, in which the sense of chilliness, headach, sickness, and lassitude, commonly predominate, is almost always longer, and the following one of excitement much less perfectly displayed. Indeed, in the second stage, the heat is principally concentrated about the trunk and upper portions of the thighs and arms, while some part of the wrists, hands, ankles, and feet, is often cool, or at least of the natural temperature. The excitement, too, varies in the course of the day. During each increase of fever the rash becomes more florid, and fainter, as the re-action subsides; both the heat and colour of the skin undergoing correspondent changes to these temporary exacerbations and remissions. The patient sometimes complains of preternatural heat, and sometimes of preternatural coldness; and occasionally of the latter, when the trunk feels hot to the touch of another person. The throat is always more or less red and swollen, after the occurrence of the stage of imperfect excitement; and specks or sloughs generally appear in a few days."——

"The pulse is low and oppressed in the first stage, and it rarely acquires much firmness or fulness in the second, though it is then quick and variable. In its natural progress, this form of the scarlet fever is often protracted to the end of the second week, and occasionally much longer. When it ends successfully, the recovery is frequently very slow, on account of the great collapse which succeeds to the state of imperfect excitement. If it be not actively treated soon after the attack, there are, for the most part, symptoms which indicate some serious affection of the brain, liver, stomach, or of other important parts; and if these symptoms should not be speedily arrested, they may gradually or suddenly become much aggravated, and at last terminate life by coma, or low muttering delirium; by vomiting and purging; or by apparent suffocation. Towards the conclusion of such cases there are frequently appearances of a dissolved state of the blood, as inky petechiæ, oozing of black gore from the nostrils, and the like."——

"The regular congestive form, next to be examined, so oppresses the vital functions in the first stage, that there is then still greater internal remora of venous blood, and less internal and external re-action of the arteries, than in the fore-mentioned variety. The subjects of this modification are for the most part suddenly attacked. They become pale, faint, and sick; and chiefly complain of pain, load, or giddiness in the head; extreme oppression; and much uneasiness in the region of the heart, or at the pit of the stomach. Sometimes, they at once sink, as if overcome by an uncommon shock, and lie in a state of confusion and oppression, without making much complaint. At other times, they walk about pale and languid for two or three days, and then take to their beds, like persons completely worn out by some great fatigue, or mental anxiety. When the attack has once decidedly occurred, the respiration is either quick and anxious, or slow and impeded. There is often a mixture of livor and paleness in the face; the eyes are frequently dull, but sometimes glairy, and they acquire a fatuous or an inebriated expression in the course of the disease.

"The mind, at first alarmed, confused, or dejected, soon becomes disordered with delirium; or an indifference to surrounding objects, and a stupor succeed, under which patients finally expire. From the beginning the pulse is generally low, quick, and irregular, and commonly continues so to the last; but in those cases where there is a very slight degree of reaction, it sometimes has a short and rather a sharp feel for a certain period, and finally grows weak and undulating. At first the tongue is commonly whitish in the middle, paler than natural, and covered with slimy saliva; but towards the close it often becomes rough and darkish, and the breath is then usually offensive. The bowels are commonly distended with flatulency, constipated or irregular in the first stage, but frequently loose in the last. The fæces are sometimes darker, at other times lighter than natural. The stomach is often extremely irritable; yet occasionally it retains every thing that is taken; though the deglutition becomes more difficult as the disease advances. This form of the scarlet fever frequently runs its fatal course in two, three, or four days, from the oc-

currence of the extreme general oppression; and there are almost always appearances of putridity in the last stage, such as oozing of blood from the mouth or nostrils, dark hemorrhages from the bladder or bowels, inky petechiæ, or gangrenous spots upon the skin. A few hours before death there is often a superficial glow of heat diffused over the body, accompanied with a darkly flushed face, high breathing, accelerated pulse, and partial or general sweats. But this mere semblance of excitement soon subsides: the extremities grow cold; the face assumes a cadaverous hue; and where the skin is pale it often has almost the smooth, waxen appearance of the surface of a corpse."

It is necessary to apprize the reader, that throughout the whole history of scarlatina maligna, we have made very considerable abridgments, since the full detail of the author would have been quite inconsistent with the boundaries prescribed to the analytical department of our Journal. It has, however, been our aim to present the most important facts mentioned by Dr. Armstrong, as characteristic of this, the malignant species of the disorder.

We are now to mention the author's mode of treatment in scarlatina through its several stages and varieties. In the simple form of the complaint we are told, that "a brisk purgative first, a mild emetic next, and the tepid bath last, are of the most essential service." When the re-action emerges, the tepid effusion should be used four or five times in twenty-four hours, and an active aperient given daily, with rest, ventilation, cleanliness, and bland liquid diet. "In the stage of collapse, which is usually very slight, milk, light animal broths, and similar articles, should always be preferred to wine and cordials:" and this last caution Dr. Armstrong insists upon as a matter of much necessity in practice, since he conceives that inflammatory and even hydracephalic irritations are likely to follow the free and indiscriminate employment of stimulating, irritating materials, under the notion of the necessity for exciting the torpid system during the condition of collapse. Where any stimulus beyond bland nutrition is judged necessary, our author tells us that "mild fresh ale has been his substitute, since this excites much less than wine, and often tends to re-

store the tone of the general habit and keep the bowels moderately open;" which last particular he conceives it expedient to attend to after the cessation of the complaint, in order to prevent its common sequel.

With respect to the scarlatina anginosa, our author remarks, that the treatment likewise in the first stage "should consist in brisk purgatives, a mild emetic, the warm bath, and bland tepid diluents; unless there be decided marks of visceral oppression, and then, as an additional measure, a little blood should be drawn." During the stage of excitement we are directed to use the cold affusions promptly, and to repeat them for the first four and twenty hours, as often as the burning heat and dryness of the skin return. Dr. Armstrong is of opinion that it is only within the first three days of the stage of excitement in this variety of scarlatina, that the cold affusion will generally be of the most decided benefit; and he thinks that Dr. Currie and his followers have rather too highly estimated the effects of this practice in scarlatina. According to his experience, the affusions should never be trusted to alone, but ought always to be combined with purgatives, and after the third day of the excitive stage, he prefers the employment of tepid affusions with purgatives; which last, "to be sufficient, should be used six or eight times every four and twenty hours during the stage of excitement."—"When symptoms of a *subacute* visceral inflammation appear on the first, second, or third day of the second stage, there need commonly be no hesitation about general blood-letting, provided it be used soon after those symptoms apparently originated. But when the visceral inflammation has been permitted to advance two or three days without resistance, or when it arises about the sixth or seventh day of the second stage, it often becomes a delicate point to determine whether the lancet should be employed. If there be appearances of universal collapse, and of an approach to gangrene in the throat, all thoughts of bleeding ought to be abandoned; and in the advanced stage of the disease, our author thinks that even blisters ought seldom to be applied, as they then not only produce much general irritation, but are sometimes succeeded by a gangrene of the part to which they have been applied. For the purpose of

clearing the throat, Dr. Armstrong recommends mild emetics; and when acid gargles are used, they should be injected with a syringe. Wine ought not, he tells us, to be used in the first or second, but only in the third stage of the scarlatina anginosa, when "there is an urgent debility:" and this ought not to be given, as is often done, in a state of convalescence. Upon the whole, purgatives, aided by the cold or warm affusions, are the principal things to be depended upon in scarlatina anginosa. Calomel and active cathartics in the first and second, and mild laxatives in the last stage.

In the scarlatina maligna, says our author, instead of adopting the stimulant plan, let the practitioner give a fair trial to the cold affusions as soon as the stage of excitement is developed; "and if they should not effectually reduce the fever, let him not pause an instant longer, but open a vein in the arm or neck, or a branch of the temporal artery, and allow the blood to flow until it is stopped by an approaching faintness." If this should not give a marked relief to the most prominent symptoms, a second but more moderate venesection should be tried in an hour or two afterwards. The head should always be raised very high, and after having been shaved, it should be repeatedly covered with folds of linen soaked in cold water. The bowels, immediately after the bleeding, are to be opened by very large doses of calomel and jalap, aided by the sulphate of magnesia, or some other neutral salt, and "the purgative plan must be persisted in vigorously, in combination with the calomel, until there is a visible change for the better in every respect. The following sentence we extract whole from the author:—

"But it must be recollected, that these powerful proceedings must be solely confined to the stage of excitement, and that unless they are carried into effect within the first thirty hours of that stage, nothing decidedly beneficial is, for the most part, to be expected from them. Having too frequently witnessed the fatal results of depletion, when prosecuted in the last stage, and likewise the complete inefficiency of half measures in the second, I am certain, that nothing short of very early, prompt, and decisive blood-letting and purging can afford a fair chance of success, when the cold affusions fail in

the first instance. No cases of this form of the scarlet fever have come under my observation, in which diffusible stimulants appeared to be really serviceable in the first and second stages; but, on the contrary, several cases have occurred in which they were rapidly destructive. Bleeding and purging, however, employed at the time and in the mode above recommended, have been the means of snatching many patients from the most imminent peril. Nevertheless, it is only justice to acknowledge, that though the depletory practice has frequently succeeded, it has also sometimes failed, even when fairly and fully triĕd. But what method of treatment is always successful in acute diseases? The most judicious and well-timed depletion now and then fails in simple inflammations of the viscera: yet the knowledge of this fact forms no objection to its general applicability in those affections; neither ought the occasional failure of the above measures, in the highly inflammatory variety of the scarlet fever, to be made a ground of objection against the general propriety of their early employment."

Such are Dr. Armstrong's rules for treatment in the first or inflammatory species of scarlatina maligna. In the irregular form of the congestive species, or that "in which the excitement is partially developed, purgatives and the warm bath are the best remedies." The bath he directs to be used about twice in the twenty-four hours for the first four or five days, and then only once in the same time, unless there be appearances of recovery. The purgatives, we are told, should be exhibited so as to move the bowels about four or five times daily, so long as the general oppression and irregular state of the excitement remains. In conjunction with aperients and the warm bath, small doses of pulvis antimonialis, or of the liquor ammoniæ acetatæ, may be sometimes useful as diaphoretics; although small and repeated doses of carbonate of ammonia are often superior in occasioning a gentle and general perspiration, which materially contributes to remove internal congestion. It is commonly necessary, in this form of the disease, to give moderate portions of some diffusible stimuli as soon as the stage of collapse approaches; and mild brisk ale, or porter, is one of the best that can be given to children, or a little Madeira wine diluted with milk.

In the regular form of the congestive scarlatina, the period proper for venesection is, for the most part, limited within the first twenty-four hours of the decided signs of congestion: the first thing to be done is to immerse the patient in the warm bath, strongly impregnated with salt, provided it can speedily be prepared: while he remains in it, or immediately after he comes out of it, as much blood should be extracted as will free the pulse from oppression, the skin being in the meantime well rubbed with coarse flannels, dipped in some stimulating liquid, such as warm vinegar and salt. The practitioner must keep his finger upon the pulse while the blood is flowing, in this congestive form of the disease; and if the beats of the artery rise in force, he may safely proceed to a moderate extent, but venesection should never, as in the inflammatory variety, be carried to the extent of producing fainting. In conjunction with these means, calomel must be boldly used in order to equalize the circulation, and reproduce a secretion of bile, which is often for a time suspended during the congestive state: if this should not purge, it must be assisted by other cathartics, after it has been two or three hours in the intestines; and where the stomach is exceedingly irritable, it may be advantageously exhibited with small doses of camphorated tincture of opium, which accelerate its action on the skin, and do not retard either its specific or purgative operation. When excessive irritation, connected with debility, exist in the very last stages of the complaint, Dr. Armstrong recommends moderate, or even very large doses of opium: and he cannot, he says, illustrate the utility of this drug better in such cases, than by comparing it to the effect produced by its administration in the last stage of cholera morbus, "sometimes snatching patients from the very jaws of death."

In the above sketch of Dr. A——'s opinions and practice, we have refrained from comments, and have, for the most part, expressed ourselves even in the words of the author; as we have been anxious that the reader should be put fairly in possession of the inferences to which Dr. A——'s experience has led him. He concludes his section on scarlatina by stating, that he has abandoned the stimulant plan of treatment, even in the most malignant forms of the complaint, from having

ascertained its inefficacy; and since he has had recourse to depletory measures of an active and decided kind, he has practised (he tells us) in the disease with much more satisfaction of mind, arising from far greater evidence of success. The following are the concluding paragraphs of his treatise on scarlatina:—

"It is my firm persuasion, that most of our worst fevers, may be arrested at the first attack by right treatment. At the same time we must be careful to discriminate the characters of the affections for which we prescribe; since, though it may be dangerous to delay active means in some varieties, it is highly injudicious to employ them in all. Practitioners of experience must have observed, that the scarlet fever is sometimes so mild a disease, as hardly to require any medicines; that at other times it is more strongly characterized, though still readily controllable by purgatives, and the cold or tepid affusions; and that it is also occasionally so violent from the beginning, as to render the agents commonly used quite unavailable. All these circumstances must, therefore, be borne in mind, that the remedies may correspond to the different appearances which the disease assumes. It is in the severest forms, and in them only, that extraordinary measures are required; and to extend those measures to other forms, would be a perversion of the principles laid down in these pages."

Before the entire dismissal of the topic, it may be allowed us just to remark, that we fully accord with Dr. Armstrong in the opinion, that what is done in the way of depletion—we mean of vascular depletion—should be done early: but we esteem it further our duty to state, that the result of our own unbiassed observations on the head of treatment in febrile diseases of all kinds, is rather in favour of local blood-letting, in combination with purgatives, pure air, cold and tepid ablutions, with the occasional use of diaphoretic stimulants in the absence of heat, and of saline diaphoretics during the pyrexial state, than of emptying the blood-vessels in the manner and to the extent which Dr. Armstrong recommends. Our remarks, of course, must be considered as applying to the general run of febrile disorders (both dependent upon specific contagion, and otherwise) that are met with in the metropolis.

Certain it is, however, that we have gained a great deal upon our immediate ancestors, in discarding the notion of debility, as the cause and essence of fever; that we have come to a more correct appreciation of the pyrexial state by viewing it as latent, or interrupted, or smothered excitement, rather than actual weakness; and that the correct principle of treatment, in all fevers, is that which directs the *equalization*, and not the increase of the vital powers.

In his section on measles, Dr. Armstrong is more cursory, and, as above remarked, less descriptive, than when on the subject of scarlatina. His first object in this division of his volume is to show "what modification of measles require active, and what gentle expedients." It is our author's opinion that bold depletions are not so admissible in measles as they are in scarlatina. "Decisive measures (he tells us) ought only to be used in the first stages of measles, when the symptoms of congestion are immediately urgent; and even then we should not push the depletion too far, as moderate evacuations, aided by the warm bath, will answer a much better purpose." In this disease, "simply procuring about two, or at most three moderate motions in the twenty-four hours, until the eruption appear, will be all that are necessary; and when the eruption has appeared, still we must be more sparing of purgatives than in the scarlatina, although, to a certain extent, they are then highly useful." When the lungs appear greatly oppressed, as indicating pulmonic congestions, an antimonial emetic is recommended; and the author here takes occasion to say, that the use of purgatives, which recently has so much obtained in almost all diseases, may probably have occasioned an unwarrantable inattention to the effects of emetic operation in many congestive complaints. Having thus briefly observed upon the circumstances and requirements of the first stages of the measles, Dr. Armstrong prosecutes the history of the disorder in the following terms:—

"Between the time of receiving the contagion of the measles and its actual operation, a few days, or one, two, or even three weeks may intervene; and from the first signs of sickening to the appearance of the eruption, a period may elapse of twenty-four hours, or of several days. In general, however,

the affection of the skin is later in coming out in this distemper after the formation of the fever, than either in the scarlatina or in the small-pox. Several writers have stated, that the rash appears on the fourth day of the fever in the measles; but as the term fever has not always been strictly defined, their meaning is liable to considerable ambiguity. If under the word fever, these writers comprehend the interval of time between the first palpable signs of indisposition and the appearance of the eruption, the statement is not generally correct, agreeably to my observations; for I have seen the eruption appear at different periods in different individuals during this interval, as it is then greatly dependent on the state of the systems infected, some of which re-act slowly, and others rapidly. But if, as it would really seem, these authors mean by the fever the development of the arterial re-action, still I must contend, that the rash does not uniformly, does not generally appear on the fourth day from the first development of the re-action: and in support of this opinion, I can most confidently declare, that I have seen the rash come out at all times between the first and the seventh days from the occurrence of the re-action, though perhaps the most common period of its appearance is between the third and the sixth day. To settle this point rightly, we must not fix the general term of the eruption from a particular constitution of the measles, but rather endeavour to deduce it from an extended view of different constitutions; and, probably, if we were to make ourselves acquainted with the circumstances under which the rash appears so variously as to time, we should be able to account for differences in this particular, and to arrange them with a natural precision. It is true, that there is both regularity and simplicity in the operations of nature; but we frequently frame our ideas of this regularity and simplicity, not from a comprehensive, but from a limited survey of her works. The current notion about the eruption generally coming out on the fourth day of the fever in the measles, has probably been taken up and propagated on the authority of Sydenham: but that illustrious author appears himself to have drawn his inference from *one* epidemic, which prevailed widely in the year 1670; and he, perhaps, too precipitately marks, as something anomalous, another and less ex-

tensive epidemic of the year 1674, in which the eruption came out sometimes sooner, and at other times later than the fourth day of the fever. Numerous errors of opinion and of practice, in many important concerns of life, may be traced to an implicit reliance on distinguished authorities; so natural it is for man, who is the creature of obedience, to pay a sort of spontaneous respect to his superiors in rank, in reputation, or in genius.

"The watery, heavy, loaded eye, the catarrhal symptoms, the less diffused appearances of the rash, and the greater feeling of the inequality to the touch on certain parts of the skin, are some of the chief marks of distinguishing the measles from the scarlet fever; and for the welfare of the patient, not to mention the credit of the practitioner, these and other diagnostics, which authors have laid down, should be strictly regarded, as the two diseases not unfrequently rage at the same time, particularly in damp weather. The catarrhal symptoms often exist several days before the rash, and seem in the onset to be among those effects of the internal congestions previously noticed; but they are seldom relieved by the eruption at first, nay, generally become worse for a certain period afterwards, and are always connected with less or more increased action of the arteries, when the fever fully emerges.

Should this eruptive stage, Dr. A—— remarks, proceed without being attended with pain, soreness in the chest, oppressed breathing, or other marks of inflammatory irritation, we shall have no occasion to bleed; but "where these are present, venesection, either general or local, will almost always be necessary." Here our author introduces a most important caution, with respect to the necessity of carefully distinguishing mere hurry of breathing and oppression about the chest, from that state of the respiration which marks actual inflammation: "the former state (he well remarks) is seldom permanently the same, but varies so much at different times, that the patient will seem now much oppressed, and again easy. Besides, the anxious breathing, which arises from irritation, is generally increased by the erect position; and that which arises from inflammation, more or less diminished: in the first, the child now and then obtains pretty tranquil slumbers, with lit-

tle motion of the chest; but in the last, the sleeps are always very disturbed, and the chest may be seen heaving up and down with an unnatural labour." When there are no signs which indicate internal inflammation, Dr. A—— conceives that gentle purgatives and tepid diluents for the purpose, as it has been termed, of determining to the skin, will usually bring the disease to a favourable issue. He informs us, that it has occurred to him more than once to have seen mild measles treated variously, "sometimes by bleeding and blisters, sometimes by purgatives and tepid drinks, and sometimes by nauseating doses of antimony;" and the result of the different methods has justified his opinion, that the plan of moderately moving the bowels, and determining to the skin, is the most safe and efficacious. Some practitioners, indeed, conceive, that the less urgent cases of this disorder ought to be left entirely to nature, without the interference of art in any shape: but Dr. Armstrong imagines, that the plan of treatment just proposed is more desirable, in order to prevent the probable occurrence of topical inflammations, either of a more active and violent, or more slow and insidious nature.

When the excitement, or menace of inflammation runs so high as to demand general bleeding, our author recommends that the jugular vein be the vessel from which the blood is taken; and with regard to the quantity to be abstracted, he tells us, that "at the completion of the first year three ounces may be accounted a moderate bleeding, four ounces at that of the second, and five at that of the third; but after a child has passed his fourth year, and has been tolerably healthy before, he will bear general bleeding much better than prior to that period." Dr. Armstrong here enters his protest against that freedom with which some practitioners talk of, and practise blood-letting in young subjects; and we earnestly recommend to those who are imbued with the sanguinary doctrines of the day, an attentive consideration of these valuable remarks. After profuse venesection both in young and old, but especially in children, there is often an agitative excitement, if we may so say, that is truly nervous, but which is very apt to be regarded as indicative of a necessity for more blood being drawn; whereas, the precisely opposite conclusion is the one

which ought to be made and acted on. Where this kind of irritation succeeds venesection, our author expresses it as his opinion, "that the lives of many children may be saved by the exhibition of a few drops of laudanum, with a little light food afterwards:" and he adds, "if we bleed too profusely, they will generally sink under the shock which the nervous system sustains." Blisters, Dr. Armstrong imagines, are sometimes injuriously applied to the chest in pulmonary inflammation, and he cautions against the employment of these agents before the excitement has been somewhat subdued by other means. The young practitioner will do well to recollect this caution: these external irritants, are, we feel convinced, too indiscriminately had recourse to as anti-inflammatory measures, and when applied in states of much fulness aud excitement, they are often liable to defeat the ends for which they are employed. On the head of cold affusion, and general exposure to cold media in measles, Dr. Armstrong is, in our minds, exceedingly judicious in his animadversions. By some, these have been considered equally applicable in this disease as in scarlatina; but the skin is frequently so susceptible of external impression, and *the pulmonary organs* thereby so liable to be affected, that it is exceedingly questionable whether that be the case in any instance; and in respect to the temperature of the air, our author, while friendly to ventilation, considers that the external heat should be regulated in rubeolous cases as equally as possible between the ranges of 50° and 60°. Much attention, we are likewise told, is requisite after the rash fades away; and it is remarked, that many children might be saved from those pulmonary affections of a serious kind, which so often occur as consequent upon measles, by their being clothed properly after the complaint has disappeared. When the disorder has declined, and especially when pulmonic attacks are threatened, it is expedient, our author thinks, to preserve the bowels for some time in a lax state, to adopt warm clothing, a cooling diet, and the occasional use of the tepid bath. Dr. A—— lastly dwells upon the expediency of suffering any cuticular affections that may occur as sequels of measles, to pursue their own course without the use of any sanative measures; "for although they may be temporary blemishes on the

surface, they are often the occasion of saving the vital works within."

"And where there is any known or suspected tendency to pulmonary disorders, a preventive regimen should be the more rigorously enforced; for, independently of those already pointed out, there are some obscure affections of the lungs, which are apt to be engendered after the decline of the rash, from the influence of cold and other causes. The general scheme of this work will only allow me briefly to advert to such affections under the head of pulmonary consumption: and even then it will be necessary to embrace some points not strictly relevant to the secondary effects of the measles; but these may be excused from the nature of the subject, to illustrate which, requires the lights of collateral circumstances."

It may seem, in some measure, a departure from the regularity of medical disquisition, to go immediately from scarlatina and measles into the consideration of pulmonary consumption: there is, however, in point of fact, a singular propriety in making the discussion of pulmonic affections follow upon the exanthemata, as they have been nosologically named, since much oftener, perhaps, than is generally suspected, these eruptive complaints lay the foundation of eventual and irremediable disease in the lungs. "If your patient" (says Dr. Beddoes, quaintly but expressively,) "who is convalescent from scarlet fever, small-pox, measles, bark but once, fear lest there be a murderer within; and though dislodged, expect him again, he now knows the way." The principal mischief which the exanthemata mismanaged or neglected are likely to produce, is probably the formation, in the parenchymatous substance of the lungs, of those bodies that are called tubercles, and which constitute, so to say, the seeds of genuine phthisis—seeds which engender their baleful fruit in the soil, and at the season of consumptive development; and thus come to constitute the real tubercular phthisis. But, as consequent upon these eruptive affections, and also as arising out of other sources, there often occur pulmonary derangements, which, although different diseases from genuine consumption, are apt to be viewed and treated as instances of this last disorder. The affections which Dr. Armstrong enumerates as occasionally

bearing a resemblance to real tubercular phthisis are four, namely, chronic inflammation of the bronchia, ulcerations in the trachea, chronic inflammation of the pleura; and, lastly, chronic and simple inflammation of some portion of the lungs themselves. It is evident, from this enumeration, that our author considers phthisical inflammation to be of a peculiar and specific nature; and this it most certainly is, notwithstanding the recent attempts which have been made to generalize all pulmonic susceptibilities as it were into one species.—Dr. Armstrong says,

"Chronic inflammation of the bronchia is sometimes the sequela of an acute attack of pulmonary inflammation; at other times it arises out of a common and neglected catarrh in irritable or debilitated habits; and occasionally it is connected with a disorder of the liver, or of some other distant organ. When it exists alone, the symptoms resemble those of an ordinary catarrh for some time; and most frequently the attention of the practitioner is only excited seriously by their continuing unabated, when they might have been naturally expected to decline. On a close examination, however, the pulse will be found quicker than natural, more especially towards the evening, and the heat of the skin rather above the usual standard, though it varies in the course of the day.—The patient can generally lie equally well on both sides, though the horizontal posture usually renders the breathing more uncomfortable, as well as the cough more troublesome for a time; and a request is generally made to raise the upper part of the bed by pillows, that the shoulders and the head may be elevated during sleep.—In the majority of cases, the sputa are at times mixed or streaked with blood, which comes from the small vessels of the bronchia; and at first they are commonly glairy, somewhat like the white of an egg; and though they grow opaque as the disease advances, yet in general a considerable period elapses before they become really purulent. When this chronic inflammation is protracted, and when pus is copiously expectorated, it is attended with nearly as much emaciation and debility as the tubercular consumption: but it sometimes happens that it is not thus protracted, the supervention of an acute inflammation unexpectedly carrying

off the patient. Where it proceeds to an advanced stage, it will mostly be difficult, if not impossible, to distinguish it from the tubercular consumption, particularly when it has caused an abscess in the lungs themselves. During the early stage, however, it may be recognised by its catarrhal character, by there being less wasting of the flesh and strength than in the tubercular consumption, and by the concomitant fever then not assuming the true hectic type. From the commencement there is indeed a slow fever; but night-sweats rarely take place until the expectoration becomes purulent, though the skin is occasionally moist and cold in some parts during the remission of the pyrexia.—When chronic inflammation of the bronchia is combined with an affection of the liver, or of some other abdominal organ, the patient, in general, can only lie with any degree of comfort on the right side, or flat upon his back. The quantity and quality of the expectoration, the character of the fever, and the other circumstances before enumerated, will enable the practitioner in the onset, and in part of the advancement, to distinguish this combination of complaints from the tubercular consumption; while the furred tongue, the foul breath, the unnatural stools, the capricious appetite, the distended epigastrium, and the uneasiness which generally attends pressure on some part of the abdomen, will sufficiently mark it from the simple chronic inflammation of the bronchia first described. Both these varieties of disease may arise after the measles from the influence of cold, or from some disorder in the digestive organs: but they are likewise not uncommon after other affections, which predispose the lungs and the liver to increased action; and they may sometimes be directly traced in delicate habits to vicissitudes of the weather, or to errors of diet, and too light clothing."

With the exception of some few passages, which our confined limits have compelled us to omit, we have thus extracted Dr. Armstrong's description of bronchial inflammation; a description marked every where by accuracy and truth, and to which we beg leave to call the attention of such readers as are anxious to obtain diagnostic information on disorders of the lungs. It is with particular pleasure that we dwell on this division of the author's treatise, since we consider the business

of distinguishing the nature and kinds, and extent and localities of pulmonary ailment, to be a matter of much pathological and practical moment; and since we conceive that the subject has hitherto not been dwelt upon with that particularity and distinctness which its importance demands.

Tracheal ulceration, the next affection marked by Dr. Armstrong as offering an occasional resemblance to real phthisis, is "denoted by little more than a tickling cough, slight change of voice, obscure uneasiness in some portion of the trachea, occasioning an oppression of breathing, and a slow increasing fever. Slight traces of inflammations often exist, at the same time, about the pharynx or the tonsils." In the progress of this affection and when ulceration comes to be established, the body wastes under a degree of hectic irritation; "but there is rarely the circumscribed patch of bright red on the cheeks, *with the glistening eye*, observable at the exacerbation of the hectic, which attends the tubercular consumption." This complaint, our author tells us, is sometimes accompanied by, and at the least rendered more severe by its connexion with a syphilitic taint: and he has known, he says, two examples of this kind treated as *pseudo*-syphilitic, under an impression that all the symptoms resulted from sympathy with the digestive organs. Here Dr. Armstrong takes occasion to warn the practitioner against the generalizing notions of the times in reference "to the specious doctrines of pseudo-syphilis;" and while he admits that the researches of Mr. Abernethy are marked by a spirit of philosophical acumen, he conceives that the great authority of his well-earned reputation is calculated to have an injurious influence upon such minds as are apt to receive those doctrines without limitation, and without inquiry, that come into the world under high sanction. "When an ulcer in the trachea is venereal, the real nature of it may be inferred from the other secondary symptoms of syphilis which are manifest at the same time, as the peculiar deep sore in the throat, the copper-coloured spots on the skin, or the like; and where such symptoms have been absent throughout, the ulcer will almost always be found to have proceeded from an inflammation of a different kind."

Pleuritic inflammations of a chronic nature, have not, Dr.

Armstrong says, been sufficiently recognised by practitioners in general. Baglivi, he informs us, is the only author who has pointedly and particularly alluded to the probability of a chronic inflammation going on in this membrane, which is not detected without much attention. "In order," Baglivi says, "to discover these occult and indolent pleurisies, make the patient lie down on his right or left side: after he has inspired with force, and coughed once or twice, ask him if in breathing or in coughing he felt no pain or heaviness in any part of his breast; and assure yourself that a pleurisy is seated in that place where he feels the pain or heaviness." Dr. Armstrong tells us, that this chronic inflammation of the pleura is principally distinguishable in its earliest stages from the tubercular consumption, by the uneasiness in the side being confined within a certain space, by the gradually increasing difficulty in the breathing, by the common motion of the body aggravating, and by rest alleviating the symptoms: and in the last stages it is to be discriminated by the fever not observing the hectic character, and by the absence of pus in the expectoration, which throughout is usually scanty.

The last affection mentioned as indiscriminately registered at times under the head of true phthisis, viz. chronic inflammation of a common kind, is very often, and indeed most usually connected with the pleuritic disorder; and although it does occasionally exist independent of such disorder, Dr. A. confesses that he knows "no symptoms which can enable us to say when chronic inflammation of the lungs is, and when it is not, connected with chronic inflammation of the pleura; and if we possessed any facts enabling us to determine this point, still they would be of little practical utility, since the treatment must be similar, whether simple or combined."

Besides the more general causes of this last species of pulmonary inflammation, our author conceives that its foundation is sometimes laid by coagula of blood retained after an hæmoptoe; and he says he knew one instance which dissection showed to have arisen from a deposition of calcareous matter, which had probably been secreted from the bronchia. Morgagni, it is well known, talks of calcareous formations in the lungs, as for the most part pregnant with very considerable

danger; but our present author is disposed to consider those concretions, not unfrequently, signs of the pulmonary affection being about to terminate favourably; and that this is often actually the case, we feel convinced by our own observation. In a recent instance that came under our notice, in which pulmonary inflammation and apparently tubercular ulceration followed a fever of considerable duration and violence, the young lady, the subject of the affection, coughed up some calcareous matter, and almost immediately the signs menacing confirmed phthisis gave way. This was most probably a case of mere pulmonic, which resembled phthisical inflammation; and had it proceeded a little further with an eventually favourable result, the recovery would by many have been considered a recovery from actual consumption.

Having thus discussed the nature, and described the symptoms of those affections, which, without considerable discrimination on the part of the practitioner, might be considered and treated as genuine consumption, Dr. A. proceeds to remark upon this last disorder, which, as before hinted, he very properly regards as being peculiar to the strumous temperament. In what scrofula actually consists, has been, it is well known, a matter of much controversy; nor is the dispute at this moment brought to any satisfactory issue. Dr. Cullen's definition of the strumous temperament, that it consists of "a peculiar state of the lymphatic system," is confessedly rather a cutting than an unravelling the knot of controversy; but we are disposed to regard the present author's account of the matter to be also somewhat gratuitous, and, perhaps, rather too accommodating to the reigning pathology of the present day. So far from an "unusual irritability of the capillary arteries" being invariably an attendant upon the scrofulous constitution, do we not often see this constitution most conspicuously characterized in cases of pervading torpor? Indeed, it would appear, that *in*irritability of the capillary order of vessels is frequently an unequivocal accompaniment of several scrofulous affections; and when irritation and action do take place in these affections, such irritative action would seem to grow out as it were of actual weakness. Neither, to our critical requirements, does the conjecture seem quite satisfactory, that Dr.

Armstrong makes on the question of tubercular formation and deposit; for even in common inflammation of the parenchyma of the lungs, there must of necessity be "some exudation from the minute vessels in the cellular tissue of the lungs;" and yet we do not see that such exudations ever constitute tubercles. But whatever be the precise nature of the scrofulous temperament, in whatever manner we are to explain the rationale of tubercular lodgment in the pulmonary texture, pretty evident it is, that these deposits are easily excited by common causes of irritation in strumous subjects; and that without such constitutional temperament being present, an equal quantum of pulmonic irritation will not engender them. These irritations are either external or internal, immediate or sympathetic; that is, they may consist in causes productive of vascular impetus directed at once to the pulmonary organs, or from irritations and inflammations of other viscera, or even more remote and seemingly less connected parts and organs.

"Tubercles (Dr. Armstrong well observes), may be roused into action, or perhaps actually produced in the true phthisical habit from a remote irritation; for whether that irritation be external or internal, it may, through the nervous operating on the vascular system, so increase the action of the capillary vessels in the lungs, as at once to prove a principal cause of this disease. In some patients predisposed to phthisis, I have seen a short tickling cough arise and disappear with the primary symptoms of syphilis; but in others, who had exposed themselves to cold, or who had taken mercury injudiciously, I have known the cough advance until suppuration of the lungs took place. Again, in constitutions of a similar cast, I have witnessed a train of dyspeptic symptoms from a stricture in the urethra, and these at last were succeeded by tabes of the lungs. From the consideration of such facts, therefore, we cannot be too careful in speedily removing any irritation from a phthisical habit; for even if that irritation should not at first be dangerous in itself, it may in the end become highly so, by implicating the pulmonary organs in disease."

Our author takes occasion further to observe on the important connexion existing between the skin and the pulmonary organs, and upon the special necessity of attending in phthisic-

al habits to the cutaneous functions. It is a well known fact, that the ancients were much more attentive to the state of the body's surface than we are in the present day: and Dr. Armstrong, with others, lays especial stress upon the great importance, in pulmonary disorders especially, of preserving the cutaneous excretion in constant and uninterrupted exercise. It is known, that in the north of Europe, the inhabitants are much more attentive than we are in Britain, to an undeviating preservation of external warmth; and the comparative immunity from consumptive complaint, of some of these nations particularly, is strikingly obvious. Our author is inclined to attribute, even the proverbial exception of sailors from pulmonary maladies, to "the thick flannels with which these men cover their surface when on ship-board."

The old practice of setons or issues in the skin as preventive of pulmonary consumption, Dr. Armstrong imagines might be revived with much benefit. "Nevertheless, the local external irritation ought never to be carried so far as to produce a general re-action of the heart and arteries; for when that is the case, the general re-action will of course extend to the capillaries of the lungs, and thus the external local irritation may prove a mean of actually exciting what it was intended to prevent." These applications appear to us to be more applicable in cases where the ulcerative stage of the disorder has come to be established; and we think we have witnessed, at least, the prolongation of life, if not the cure of the complaint, by setons and issues made in the fleshy part of the chest. Over the true, phthisical, tubercular ulcer, these remedies possess, probably, no more at farthest than a mere palliative influence; but in cases of common abscess of the lungs, it has occasionally seemed to us that they have operated radical and permanent benefit.

We do not think it necessary to pursue Dr. Armstrong through the several causes calculated to create consumption in the phthisically disposed by nature; such as "various diseases, great fatigue of body, or anxiety of mind, immoderate courses of mercury, excessive venery, improper use of vinous or spirituous liquors, an indigestible, irregular, or a very spare diet, sedentary employment, the giving of suck too long, and copi-

ous losses of blood;" since these sources of derangement are sufficiently obvious, and where the natural tendency is to a particular disease, they easily become exciting sources of such affection. On the subject of diet, however, we deem our author's remarks worthy especial regard, since they run counter to that starving creed, which has recently obtained, in our opinion, to an injurious extent. "Too spare or too poor a diet" (our author well observes) "often produces consequences not unlike to those of too full or too rich diet; and the pathologist will find, however seemingly inconsistent, that similar effects are perpetually flowing from opposite causes." And again; "It is notorious, that few become consumptive *in whom the tone of the constitution is maintained.* As a prophylactic measure, therefore, it is of great consequence to avoid too rich or too full a diet on the one hand, and too poor and scanty a diet on the other." If we allow that pulmonary consumption may grow out of too scanty a diet, we admit, *a fortiori*, that inflammation may proceed from this source; for genuine phthisis cannot have place without preliminary irritation of an actually inflammatory kind: and this being admitted, what becomes of that doctrine which maintains that all disorders of an irritative nature proceed from vascular plenitude? The early cramping and confinement which the manufacturing system imposes, is too obviously a wide-spreading source of serious evil to the rising generation; and it were well if the following hints of our author could be received as law among our manufacturing community. "Where necessity demands that children be sent to laborious or sedentary employment before the age of puberty, the work should be proportionate to the powers of the child, who ought to be allowed free exercise in the open air every day."

With respect to the changes which indicate the approach to phthisis, and thus serve as early diagnostic marks between this and other maladies, our author considers the condition of the skin as one of the principal criteria. The colour of the cheeks always becomes paler and more delicate than before, while that of the lips is often of a brighter red. The colour too comes and goes in a surprising manner: "a beautiful bloom will be spread for a moment over some parts of the cheeks,

and then receding, it will leave a remarkable pallidity, almost approaching to whiteness. Whenever this symptom is obvious, with a pulse somewhat quicker than natural, and a short tickling cough, phthisis may always be apprehended." The eye too is, as well as the skin, a striking index of incipient mischief, the tunica adnata becomes of a faint bluish white colour; and what has always appeared to us to be one of the most unequivocal signs of danger is, "the glassy or glistening appearance" which this organ assumes, together with the "expression of interest, and even of beauty, which is not unfrequently thrown over the whole countenance, most remarkable in persons whose face had been previously plain." When the tubercular inflammation establishes itself without any prior irritation of the digestive organs, the tongue is always red and clean, and from the first there is a tendency to hectic sweats. When this kind of irritation comes to be established, hope of recovery is a very frequent attendant upon the complaint; and it has been suggested, since this is not always the case, whether the opposite feeling to hope, which sometimes displays itself, may not have place when the disordered irritation has made its way into the lungs by first attacking the hepatic organ. There may be some truth in this remark, as a general proposition; but it certainly is the case, that at times any thing but hope is present in protracted cases of even genuine, simple, idiopathic phthisis.

We now come to the treatment of the several pulmonic affections above specified. In adverting to the remedies proper for chronic inflammation of the bronchia, Dr. Armstrong very justly compares the state as to its actual essence, and remedial requirements, with that of protracted hooping-cough; and recommends change of air as early as possible, provided the weather will permit it without risk to the patient. General bleeding to a copious extent is condemned in this complaint on account of the prevailing debility; but small general, or moderate local bleedings, are sometimes very useful, when followed by blisters near the site of the disease." An antiphlogistic regimen is advised; and where milk does not disagree with the stomach, it is said to constitute "the best article of diet, as it supports the strength without exciting the heart and arteries.'

We were exceedingly happy to find Dr. Armstrong recommending in these pulmonic affections, a medicine which has long appeared to us to have fallen into unmerited decline, viz. the copaiba. To this medicine Dr. Armstrong professes himself extremely partial; and, indeed, we do not know whether in some other chronic maladies, afterwards alluded to, he does not carry his notion of its virtues beyond its actual deservings. But in application, at least, to the derangements now under notice, we feel assured that the practitioner, who has not hitherto included it in his list of remedies, will, upon trial of its effects, be obliged to Dr. Armstrong for thus calling his attention to its properties. "At first" (says our author) "it should be given intimately mixed with fine mucilage, in doses of about thirty or forty drops, three times a day, and gradually increased afterwards, until sixty, eighty, or more drops be taken at each time. When it acts as a strong purgative, Dr. Armstrong recommends a diminution of the dose; and as a cathartic in these cases, he prefers "castor oil and the Harrogate sulphureous waters." Copaiba, combined with sulphur, our author reminds us, was a favourite remedy of Morgagni in chronic complaints of the lungs: and he suggests, whether both these medicinals have not been too much neglected in coughs, by physicians of the present day. In this suggestion of Dr. Armstrong we cordially join; and we are disposed to think, that in reference to these, as well as several other medicines of a deobstruent nature, modern pathology and modern practice are rather too nice and sceptical. We are, perhaps, to attribute a great deal of present dislike to the idea of anti-obstruction, (so to express ourselves,) to the stimulating doctrines of the Edinburgh school, and to the party opposition which that school engaged in, against any thing that seemed at all to bear in favour of the humoral pathology. Dr. Armstrong insists upon the advantages promised by a regulated temperature in chronic affections of the bronchia; and he is inclined to think, that where the tar vapour has seemed to operate a cure of pulmonary consumption, the malady had been that now alluded to.

Our author still recommends the copaiba in ulcerations of the trachea, but he seems to imagine that these cases are more

commonly connected with a syphilitic taint than is usually supposed; and when that is the case (which will for the most part be rendered evident by concomitant symptoms, to be detected by investigation,) the cure is not to be effected without mercury. Mr. Bedingfield has suggested, whether in a case of simple ulcer, situated on the larynx, it might not be advisable to make an opening with the trachea or larynx, and apply such substances to the sore as might excite a healthy action; and from the successful event of the operation of laryngotomy, as detailed by Mr. Charles Bell, in his Surgical Observations, Dr. Armstrong considers, that in cases of extreme emergency, Mr. Bedingfield's suggestion might be acted on.

Inflammations of a chronic kind, in the pleura, may admit, according to our author, "in its first stage, before effusion has taken place in the thorax, one or two small or moderate bleedings from the arm. Afterwards, leeches and blisters should be applied repeatedly and reciprocally to the chest, in conjunction with daily diuretics, occasional laxatives, and an antiphlogistic regimen. If these measures prove unavailable, the mouth must be slightly affected by calomel, and the recently dried and powdered squill administered as soon as the ptyalism occurs, and gradually increased in quantity until it acts powerfully on the kidnies." It is quite necessary that the squill employed should be fresh; and it is, perhaps, principally from want of due attention to this particular, that we often in practice witness such a difference of apparent effect in this powerful medicine. When calomel is given under these circumstances, it ought, in general, to be given "in conjunction with small doses of opium, which allay irritation, and promote a determination of blood to the lungs." Its further combination, under these circumstances, with digitalis, has, in our practice, appeared to be abundantly serviceable; each ingredient in such composition seeming at once mutually to assist the virtues of the other, and to serve as an antidote against its injurious tendency. From the union of half a grain of digitalis with a quarter of a grain of calomel and opium given two or three times in the course of the four and twenty hours, we have often witnessed much benefit in several species of internal inflammation of a chronic and insidious nature. Our author mentions in this

We were exceedingly happy to find Dr. Armstrong recommending in these pulmonic affections, a medicine which has long appeared to us to have fallen into unmerited decline, viz. the copaiba. To this medicine Dr. Armstrong professes himself extremely partial; and, indeed, we do not know whether in some other chronic maladies, afterwards alluded to, he does not carry his notion of its virtues beyond its actual deservings. But in application, at least, to the derangements now under notice, we feel assured that the practitioner, who has not hitherto included it in his list of remedies, will, upon trial of its effects, be obliged to Dr. Armstrong for thus calling his attention to its properties. "At first" (says our author) "it should be given intimately mixed with fine mucilage, in doses of about thirty or forty drops, three times a day, and gradually increased afterwards, until sixty, eighty, or more drops be taken at each time. When it acts as a strong purgative, Dr. Armstrong recommends a diminution of the dose; and as a cathartic in these cases, he prefers "castor oil and the Harrogate sulphureous waters." Copaiba, combined with sulphur, our author reminds us, was a favourite remedy of Morgagni in chronic complaints of the lungs: and he suggests, whether both these medicinals have not been too much neglected in coughs, by physicians of the present day. In this suggestion of Dr. Armstrong we cordially join; and we are disposed to think, that in reference to these, as well as several other medicines of a deobstruent nature, modern pathology and modern practice are rather too nice and sceptical. We are, perhaps, to attribute a great deal of present dislike to the idea of anti-obstruction, (so to express ourselves,) to the stimulating doctrines of the Edinburgh school, and to the party opposition which that school engaged in, against any thing that seemed at all to bear in favour of the humoral pathology. Dr. Armstrong insists upon the advantages promised by a regulated temperature in chronic affections of the bronchia; and he is inclined to think, that where the tar vapour has seemed to operate a cure of pulmonary consumption, the malady had been that now alluded to.

Our author still recommends the copaiba in ulcerations of the trachea, but he seems to imagine that these cases are more

commonly connected with a syphilitic taint than is usually supposed; and when that is the case (which will for the most part be rendered evident by concomitant symptoms, to be detected by investigation,) the cure is not to be effected without mercury. Mr. Bedingfield has suggested, whether in a case of simple ulcer, situated on the larynx, it might not be advisable to make an opening with the trachea or larynx, and apply such substances to the sore as might excite a healthy action; and from the successful event of the operation of laryngotomy, as detailed by Mr. Charles Bell, in his Surgical Observations, Dr. Armstrong considers, that in cases of extreme emergency, Mr. Bedingfield's suggestion might be acted on.

Inflammations of a chronic kind, in the pleura, may admit, according to our author, "in its first stage, before effusion has taken place in the thorax, one or two small or moderate bleedings from the arm. Afterwards, leeches and blisters should be applied repeatedly and reciprocally to the chest, in conjunction with daily diuretics, occasional laxatives, and an antiphlogistic regimen. If these measures prove unavailable, the mouth must be slightly affected by calomel, and the recently dried and powdered squill administered as soon as the ptyalism occurs, and gradually increased in quantity until it acts powerfully on the kidnies." It is quite necessary that the squill employed should be fresh; and it is, perhaps, principally from want of due attention to this particular, that we often in practice witness such a difference of apparent effect in this powerful medicine. When calomel is given under these circumstances, it ought, in general, to be given "in conjunction with small doses of opium, which allay irritation, and promote a determination of blood to the lungs." Its further combination, under these circumstances, with digitalis, has, in our practice, appeared to be abundantly serviceable; each ingredient in such composition seeming at once mutually to assist the virtues of the other, and to serve as an antidote against its injurious tendency. From the union of half a grain of digitalis with a quarter of a grain of calomel and opium given two or three times in the course of the four and twenty hours, we have often witnessed much benefit in several species of internal inflammation of a chronic and insidious nature. Our author mentions in this

part of his treatise, the advantage that may be obtained in pulmonary inflammations, by the too much disregarded expedient of "raising the upper poles of the patient's bed, by placing blocks of wood under them," or using an inclined plane, so that the patient's head and shoulders shall be constantly, and without trouble to himself, kept elevated above the line of his body. The same observations apply to chronic parenchymatous, as to pleuritic inflammation. Indeed, as before remarked, their existence is frequently simultaneous, and they cannot always be distinguished in practice.

Dr. A—— commences his particular remarks on the treatment of true consumption, by what we deem a most excellent and seasonable caution; namely, that the use of the lancet ought to be very warily had recourse to in these strumous habits and affections, lest, in our endeavours to subdue local inflammation, we "break up the general strength." "As I consider (he says) that phthisis is nothing more than scrofula of the lungs, it may easily be called into existence by too much depletion, like every other modification of scrofula." But as we consider the question of repeated venesection, in the first stages of pulmonary disorganization, to be a matter of prime importance, as it has appeared to us that practitioners have often, most unquestionably with the best intention, precipitated, rather than protracted the fatal event, by too freely emptying the blood-vessels under these circumstances; and, lastly, as the author before us is at once high authority, and expresses to the full our own feelings on the point at issue, we cannot refrain from extracting at length his sentiments on this head in his own words:—

"When called to any case which has the character of a threatened or of an incipient phthisis, the practitioner must minutely inquire into its real nature, that he may ascertain whether or not it be connected with any local irritation inside or outside of the chest, or with any depraved state of the general system. If such local irritation, or such depraved state of the general system, actually exist, the chance of recovery is the greater; for if either can be removed, by the means already intimated, the pectoral symptoms may disappear, provided they depend upon a sympathetic disorder of action, and not

upon derangement of structure. On the contrary, should the phthisical signs be unconnected with morbid conditions of this nature, perhaps the measures upon which most confidence is to be placed, in the present state of our knowledge, are those which act directly or indirectly on the skin: at least this is the result of my own observation. But it may first be naturally inquired, what is the power of blood-letting in the primary stages, as it is now becoming so favourite a remedy? Celsus advises venesection; Pringle does the same, and other authors of note, as well among the ancient as the modern; but I nevertheless suspect, that it will rarely of *itself* stop the approach or advancement of phthisis, except when chronic inflammation of the pleura, of the trachea, or of other parts, is operating as an excitant of the latter in habits hereditarily predisposed. In some cases of apparently genuine phthisis I have ordered repeated full bleedings from the beginning, until it would have been temerity to proceed further: yet the disease passed on, and the blood drawn, generally exhibited the buffy coat to the final operation. From this last mentioned circumstance some might contend, that the venesection should still have been boldly ventured on, as the blood so evidently showed inflammation. But in reply to this remark it may be urged, and justly too, that the buffy coat may be both occasioned and maintained by repeated abstractions of blood; for more or less re-action of the heart and arteries, by which the buffy coat is produced, always follows blood-letting, when carried beyond a certain point; and this is particularly the case in the irritable subjects of a phthisical tendency. Upon this principle, therefore, the very measure with which we so often subdue inflammation may be made the cause of producing it in certain persons, and in certain diseases; and however boldly and laudably we use it in intense inflammations or congestions, it requires a more deliberate and wary employment in complaints of a chronic character. Most certainly I have seen small or moderate bleedings of benefit in incipient phthisis, when followed by blistering; but wherever there is great constitutional delicacy, we must be cautious in even having recourse to them; and at all times when we determine on venesection in phthisis, we must endeavour so to regulate it as not to make it the occasion

of an increase of that re-action which it is designed to moderate. In the true tubercular phthisis, it is not a simple but a complicated irritation which most frequently exists in the lungs even in the commencement; an increased action of the capillaries, either producing or exciting tubercles, and the tubercles themselves re-acting upon and irritating those portions of the lungs in which they are imbedded. Very copious or very repeated venesection only tends to render the whole capillary system of vessels more irritable: from reason alone, therefore, one would conclude, that they could not be serviceable in phthisis; and my own experience fully bears me out in affirming, that this is actually the fact; small local or cautious general bleedings, so far as I have observed, are preferable to large ones: and the lancet is perhaps only admissible in the earlier periods of those cases attended with topical fulness, and a marked constitutional excitement. However undeniable it may be, that phthisis is an excitive or an inflammatory disease, yet it seems probable, that the concomitant excitement or inflammation is of a specific nature: at all events, neither the one nor the other is within the common control of those agencies which so successfully impede the ordinary excitement and inflammation of febrile diseases. But as venesection is a measure of such great importance, and as men of approved talents have spoken favourably of its decisive use in an unmixed phthisis, it would ill become me to disregard their authority; and, therefore, it has been my wish simply to state the results of my own observation in regard to it, that the consideration of it may still remain open to fair inquiry."

It has already been stated, that Dr. Armstrong attaches extreme importance to the due regulation of cutaneous excretion as a remedial agent in incipient phthisis; and he considers the beneficial effects of sea voyages and a warm climate, to be mainly referable to this source, "the nausea, or sickness commonly attendant upon the first, and high and genial temperature of the last, alike determining the blood to the skin." Even in cases of hemoptoe it is said sea voyages will prove abundantly serviceable, although the sea sickness should amount to violent vomiting, and continue for a number of weeks. In further remarking on the importance of diverting

from the lungs to the skin, Dr. Armstrong again alludes to the principle of counter-irritants externally applied, and he seems to infer, that the benefits derived from the application even of leeches, as well as blisters to the surface, is, at least in part, attributable to the new action which these induce in the capillary vessels of the surface. To us there has always appeared one advantage, at least, which local detractions of blood by leeches insure above the more sudden discharges by cupping glasses; and that is, that the gradual way in which the vessels empty themselves, may prove more permanently operative, inasmuch as their diameters as gradually apply themselves to existing circumstances, and thus the local plethora, from re-action after blood-letting, is, in some measure, obviated. The tepid bath is extolled by Dr. Armstrong, still upon the same principle of determining to the surface; and it is conceived, that this "might actually relieve many cases of what are called passive hæmorrhages, by equalizing the circulation; for it not only brings a flow of blood from the arteries towards the surface, but it communicates an equal tone to the heart and arteries, thereby enabling them to resume their wonted offices." Respecting digitalis as an antiphthisical power, our author's opinions are not in any measure favourable to its efficacy. "The immediate relief," he says, "which it sometimes gives, by arresting the pulse, and by exciting nausea and diuresis, is, in general, completely counteracted by the constitutional shock and nervous irritation which it communicates; and as for its influence in a confirmed phthisis, however it may alleviate the cough for a time, it will always hasten death, by undermining the little strength which remains in the shattered system."

It was before mentioned, that our author recommended a nutritious diet, as a preventive of pulmonary consumption. "But what may prevent a disease, (he very judiciously remarks) often becomes improper when it has once been developed, and a milk and vegetable diet are advised in the first stages of the actual induction of the complaint." In the last stages, animal food and ale may be safely, and even advantageously given, when they do not appear to augment the cough and fever.

After proposing the establishment of a society, for the pur-

pose of further elucidating the nature and treatment of pulmonary consumption, Dr. Armstrong devotes the remainder of his pages to the consideration of the virtues of copaiba, to observations on the utility of waters containing sulphureted hydrogen in several chronic complaints, and to some general remarks on the rationale of chronic diseases.

We suspect a little too much of enthusiasm, and catholicon kind of attachment to the two remedies above mentioned: we are, however, fully convinced, although they may be rated rather too highly by our present author, that his hints respecting their utility deserve due consideration from every practitioner of medicine. We shall take another opportunity, probably, in the retrospect of the progress of our science, to resume the subject of these medicinals, and to enter more fully into the consideration of our ingenious author's physiological data and pathological principles; all of which, it is unnecessary to say, are marked by much ingenuity, but some of which appear to us to be of rather objectionable import. Here and there, too, there seems to be something like an assumption of originality in the propounding of doctrines, that, whether true or false, are not absolutely novel. *Sed hæc hactenus.* It would be highly grateful to our feelings always to close our criticisms with equally favourable sentiments towards the author criticised, as those with which we are impressed on the present occasion.

ORIGINAL PAPERS.

FOR THE ECLECTIC REPERTORY.

Case of supposed Aneurism of the Right Carotid Artery. By Samuel Powel Griffitts, M. D.

In the last week of the twelfth month, 1817, I visited E. H. an active woman, thirty-nine years of age. She had fallen on the ice some few days before, when her head chiefly, appeared to be injured. She now complained of head-ache and uneasy sensation of the breast. The jarring, aneurismatic beat of the pulse, led me to make more particular enquiry into her situation; and I perceived a tumor on the right carotid, which was traced as far as the clavicle, where I supposed it might be continued into the thorax; and had no doubt of its being an aneurism of the above mentioned artery. Doctors Chapman, Dorsey and Morgan, who saw it afterwards, at different periods, were of the same opinion.

There was but one course to pursue; a strict attention to rest, low diet, frequent bleedings, and purging with sulphate of magnesia; this plan afforded all the relief that could reasonably be expected.

Many distressing symptoms occurred; an almost constant thrilling noise in the head; severe pain in the breast and arms, particularly the right arm, a sense of pressure on the trachea, occasional fainting and dyspnœa; the appetite at one time much affected. Most of these symptoms were relieved by the use of the spt. comp. æther. vitr. musk julep, and aqua ammoniæ.

She continued in this way until the 20th of the eleventh month, 1818; when, about six o'clock in the morning, she was seized with severe pain in the chest, followed by very difficult respiration and vomiting; and, becoming gradually weaker, died without pain, about one o'clock.

Doctor Parrish's Account of the Appearances on Dissection.

On the 21st of 11th month, 1818, I examined a body for my friend, Doctor Samuel P. Griffitts, who was present: the subject was a female, supposed to have died with Aneurism of the right Carotid Artery.

I carefully dissected the muscles of the throat; and, after turning several aside, a tumor was brought into view, which I verily believed to be an aneurism of the carotid artery: I then opened the thorax; the cartilages were found ossified, and required the use of the saw.

I found a dropsy of the pericardium. On examining the great vessels about the heart, I thought the aorta had somewhat of a pouched appearance, that looked as if it might have been incipient aneurism. On tracing the vessels upward, I found the arteria innominata and subclavian perfectly natural. I now continued to divide the sheath of the carotid, and to trace it from below upward; and, what was my surprise, to find it also perfectly natural; it passed under the tumor, but was not in any way involved in it.

The question here naturally arises, whence was the tumor derived? I answer, it was the thyroid gland very considerably enlarged; it was elongated, and had obtained a situation directly over the carotid artery; the patient's neck was very short; the pulsation in the carotid was imparted to the tumor laying over it; and, I am informed, there was a strong resemblance to the aneurismal jarr or thrill. We are aware, that in dropsy of the chest and pericardium the heart often palpitates most violently; and this morbid pulsation may explain the throbbing of the carotid, which bore so strong a resemblance to aneurism.

Philadelphia, 12*mo.* 27, 1818.

The propriety of operating for aneurism had been suggested, to which I objected; as it was impossible to know the state of the artery below the clavicle. I had frequently endeavoured to remove, with my fingers, the tumor from the artery, wishing to think the disease was glandular, but could not succeed, as the tumour was so firmly fixed over the vessel, as not to be

moved from it; and the pulsation was such as to convey the idea that there was no intervening substance.

In my note to Doctor Parrish, requesting him to make the dissection, I find that I made use of the following expressions; "It is an interesting case of aneurism of the right carotid, at least, so said the symptoms;" still, I could call it nothing but aneurism, although I have long been accustomed to hesitate about the correspondence of symptoms with causes, especially where there is any thing like obscurity.

I regard the present as an instructive case. It appears to me that, in the living subject, it must, by the most experienced, have been judged to be an aneurism. Had the operation of passing a ligature on the arteria innominata, so successfully performed by Doctor Valentine Mott of New York, been, from any cause, resorted to in this case; if it had perfectly succeeded, the tumor would, indeed, have disappeared, or at least have been much diminished, because the thyroid gland would have been deprived of a large portion of blood, by the obliteration of the thyroid arteries, which come from the right carotid and right subclavian; but still no aneurism would have been removed, because none existed; and yet, such would have been the appearance, and such the conclusion. If the ligature had been passed on the right carotid, near to the aorta, which it would have been, if such operation had been performed, the above mentioned results would have partially taken place. It is because such a deception may occur, that I believe it right to record the present case, and hope it may prove a salutary warning to my medical brethren, and that they may be induced to act with caution in a disease of this description.

Philadelphia, 12*th mo.* 31*st*, 1818.

FOR THE ECLECTIC REPERTORY.

Two Experiments performed on Living Animals, to prove that the Circulation of the Blood, through the Lungs, is immediately and entirely suppressed during Expiration. By RICHARD HARLAN, M. D.

I HAVE been induced to offer you the two following experiments, with the hope that the original object of them may be considered of so much importance, as to induce some one, possessed of talent, industry and leisure sufficient, to institute a course of experiments; in order to throw some light on a subject of which, as yet, we are entirely ignorant.

I am perfectly aware that hypothesis, of whatsoever kind, ought not to be admitted into science without the most rigorous examination; and that doubt has a right to close the door of credence until the passport of demonstration is produced, sealed by nature or experiment.

For the accuracy of my experiments I can vouch; it is for others to judge of the correctness of my deductions.

The fact, that the arteries are empty, and the veins filled with blood after death (provided the death of the animal has not been sudden or violent, as from the effects of electricity, a blow on the stomach, the operation of certain gases, &c.) is well known to every one the least conversant in anatomy; but the *cause* of this phenomenon has hitherto escaped the attention of the anatomist; at least no satisfactory explanation has ever been offered. It was with a view to obtain some information on this subject, that I was encouraged to perform the operations I am now to relate; and although I was disappointed in the main object, other circumstances were brought into consideration during the experiment, equally interesting to the practical anatomist or speculative physiologist; and I flatter myself I have detected one error in physiology.

It was the opinion of many, and inculcated, for several years, in the lectures of our much lamented Professor of Anatomy, Doctor Wistar, that the circulation of the blood, through the lungs, was not prevented during expiration, or the collapsed state of those organs; and that death, in every

instance, was caused by the deteriorated or deoxygenated venous blood finding its way into the left cavities of the heart, and thence into the coronary arteries. If my experiments be correct this reasoning is certainly erroneous. It is true they differ widely in their results from those of Doctor Goodwin; but this subject was not immediately connected with the object of his experiments.

I am happy to state that, after having communicated my experiments to Dr. Wistar, he was induced to change, in part, his opinion. He informed me that, from Goodwin's experiments, he had been induced to believe the contrary for many years. Much interest was shown on his part; and, after frequent conversation with him on the subject, he was kind enough to urge me to pursue my experiments extensively and publish them; since which time various circumstances have prevented my giving the subject further attention; and I am induced now to make them public with the hope that some one, more capable, will institute a course of experiments to determine the problem yet to be solved; "why, after death, the arteries are empty and the veins filled with blood."

Experiment 1*st.*

Having secured a full grown healthy cat, in a horizontal position, I passed a ligature around the trachea, taking care that the lungs were in a state of expiration; I immediately opened the thorax, and exposed the heart to view; when the following appearances presented themselves. Both the auricles and ventricles contracted separately and naturally at first, but in less than five minutes the left auricle ceased; in fifteen minutes the left ventricle also; and in twenty minutes after the operation, neither could be again made to contract by any stimuli whatever. But the right auricle and ventricle continued their systole and diastole, incessantly, for fifty minutes; the consequence of which was, the right cavities, together with the two cavæ, became exceedingly distended; for, long previous to the left cavities having ceased to contract, not a single drop of blood entered the left auricle, which was very flaccid and empty. The circulation through the lungs, was, in this instance, entirely sus-

pended: hence we may remark, if the lungs did admit of as free circulation during expiration as during inspiration, why, in the fœtal state, does so small a portion of blood find its way through them?

I am unable to say why, in this experiment, the right cavities should continue their systole and diastole so much longer than the left; unless it is that they still continue to receive a portion of the vis vitæ from the blood, by which they were distended; as they are both, cæteris paribus, possessed of the same powers of life, being animated from the same source.

I now thought that the phenomenon in question was explained, by supposing the blood continued to circulate in the veins, whilst no more was propelled into the aorta and arterial canals; the latter were, of course, emptied. But I was soon convinced, that though the principal objection was obviated, the experiment did not explain in what manner that portion of blood, forced into the aorta by the last contraction of the left ventricle, found its way, independent of any vis a tergo, through the whole extent of the arterial canals to the mouths of the veins. This constitutes the problem to be solved; and it was of this, in particular, that Doctor Wistar asserted he had never heard any satisfactory explanation offered; although he had availed himself of frequent opportunities of conversing with men of science, upon the subject; some of whom argued, the pressure and action of the surrounding muscles as the cause; others the pressure of the external air; but he remarked "the elasticity of the coats of the arteries would resist any such pressure, and prevent the obliteration of their calibers."

On dissecting the heart, the left cavities were found nearly empty of blood; what remained was in consequence of their contractions being too feeble to force it out; the right cavities, on the contrary, were enormously distended; the lungs, when cut into, displayed a sanguineous, frothy appearance, similar to that observed in the lungs of drowned animals.

Experiment 2d.

Having procured another full grown healthy cat, in the presence of two medical gentlemen, I passed a ligature around the trachea, the lungs being in a state of expiration, and proceeded

to expose the heart to view; and here I had an opportunity of observing, that the pericardium is perfectly transparent, and, like the cornea of the eye, becomes dim only at the approach of death. In this experiment it was some time before we perceived I had not removed it, as it lay flaccid over the heart, whose motions were distinctly observed through that membrane.*

Although the *nature* of that principle, which animates the animal and vegetable kingdoms, may be too abstract for our investigation, yet its *effects* and its *laws* are of the utmost importance to the physiologist; and is a subject requiring our most serious consideration.

Deprive the animal structure, for an instant, of this unknown, imponderable, and invisible principle, we cannot but be struck with the great change that immediately supervenes, previous to decomposition; the adnata, over the cornea, becomes dim; the pericardium loses its transparency; the bladder permits the urine to percolate through its coats; the stomach and the gall bladder lose, in a great measure, their adhesive affinity, and allow their contents to transude the pores, and become effused upon the intestines; the muscular fibre cannot now resist nearly the same force as during life. Which demonstrate that there exists a vital or animal, as well as a *chemical* affinity in the living body; so different are living from dead membranes; and hence the fallacy of any experiment performed on dead parts, with a view to determine their action whilst in a living state.

I commenced operations at five minutes before nine o'clock, P. M. In less than five minutes after the trachea was tied the left auricle ceased to contract, as in the former experiment; in fifteen minutes the left ventricle ceased its contractions; and here the circulation through the lungs was suppressed. In twenty minutes the right ventricle ceased to contract, but the right auricle continued its systole and diastole, not only fifty minutes, as in the former experiment, but for *seven hours*, four of which it continued its contractions distinctly, and independently of any other external stimulus than the atmosphere to

* This experiment was made in the year 1816.

which it was exposed; whilst every other part of the body, the heart itself, except the right auricle, was cold, dry, and lifeless. The object of the experiment not being to determine the length of time the heart could contract after respiration, but to prove that the circulation through the lungs was not only interrupted, but altogether suppressed, during a state of complete expiration, it was discontinued. My assistants left me, at the end of an hour, to continue my observations alone; being perfectly satisfied, from the great distention of the right cavities, the regurgitation of the blood in the cavæ, the violent efforts of the right cavities, and the flaccid state of the left side of the heart, that no more blood had passed through the lungs.

I still, however, felt an inclination to see how long the contractile power would remain in the left auricle, and observed it attentively from nine P. M. until four in the morning; most of which time it contracted of itself, and was highly susceptible of external stimuli. On touching it with the point of the scalpel it contracted briskly; towards the latter part its contractions became less frequent, with intervals of some seconds, which intervals increased until one o'clock, A.M. after which it no longer contracted independent of external stimuli. On dissection, the left cavities were found flaccid and empty; whilst the right cavities, the two cavæ, with the pulmonary artery, were distended. The blood, in the right cavities, did not coagulate so long as the power of contraction remained. This engorgement of the right cavities would not have taken place did the lungs allow as free circulation, when compressed by expiration, as when expanded by inspiration; and that it does not depend on the want of power in the right auricle, to force it onward, is shown by instituting artificial respiration, which continues the circulation; also by the resuscitation of animals, which have remained a long time under water.

Conclusion.

From these experiments I infer, that death or asphyxia, from drowning or hanging, is not induced from the deteriorated or venous blood finding its way to the coronary arteries of the heart, nor from pressure on the brain, and loss of nervous energy solely, as it is of no importance whether the animal be

decapitated or not, provided artificial respiration be continued; the circulation goes on equally well for a time. But in every case of asphyxia there is a negation of oxygen, and consequent paralysis of the lungs; and the effect is the same, whether this negation proceed from the inhalation of mephitic air, from the exclusion of all gas, as in drowning, hanging, tying of the trachea, or from interrupting the nervous spirit, by passing a ligature around the eighth pair of nerves; they all induce a paralysis* of the lungs, and a consequent suspension of their action. This paralysis is, therefore, in every instance, the *immediate* cause of death; whether it proceed from the simple negation of oxygen, or destruction of nervous energy; the one may produce or occasion the other. For although by inflating the lungs after decapitation, the circulation may be made to continue, it does so no longer than the right cavities of the heart possess a power of contraction sufficient to propel the blood through the expanded lungs; and until the vital energy of these organs is expended; which must soon happen. For no sooner does the paralysis of the lungs take place, than that power, by which the life of animals is produced and continued, and which I suppose to be derived from the atmosphere, is put a stop to, and the blood, which animates all the solids, no longer receiving its supply, death, or the total extinction of the vital principle, is the consequence. On the other hand, if the lungs be left in a state of expiration, the circulation is immediately suppressed; as in this instance, besides the paralysis, the air cells, with the extremities of the arteries and veins, are compressed.

It will be recollected, that the length of time, for which the hearts of the animals dissected continued their contractile power, differed widely; the one fifty minutes, the other seven hours. And as it is impossible to determine what length of time the human heart may retain its *vis insita*, after every other phenomenon of life may have ceased, from asphyxia; we should be encouraged to attempt resuscitation in cases otherwise desperate.

The frothy, sanguineous appearance, noticed in dissecting the lungs of the animals which were the subject of these experi-

* By paralysis of the lungs I mean a suspension of their vital action.

ments, has, by some authors, in their dissections of drowned persons, been mistaken for the water which they supposed to have passed into the lungs; but it is not peculiar to the lungs of drowned animals. It may be observed, more or less, in death from all kinds of asphyxia; it is occasioned by the halitus, or vapour, which escapes from the exhalants, not being carried off by the function of respiration, being condensed and collected in the cells.

As the deteriorated or venous blood never reaches the left side of the heart in these cases, it cannot occasion those morbid effects upon the brain, so frequently spoken of by Bichat and other writers. Admitting that venous blood was propelled into the left cavities, I believe it would not produce its deleterious effects so immediately as is generally supposed; as, in those cases of infants, and, perhaps, of pearl divers, where the communication of the two auricles is continued by the *foramen ovale*, and by which a mixture of venous, with arterial blood in the left ventricle, is produced, death is by no means the immediate consequence.

The passage of water, into the lungs, has no share whatever in inducing death from submersion. I filled the lungs of a cat by injecting water into the trachea; it threw her into convulsions, and the water was immediately expelled. Those parts about the glottis are so exceedingly irritable that, whilst life remained, no water could pass into the trachea; and, in fact, it is not to be found in dissections after death, until putrefaction has taken place.

As the heart is the last muscle which loses its power of contraction, and as the circulation *cannot* be continued, whilst the lungs are compressed; the first indication in our attempts to resuscitate should be, 1. Mechanical inflation of the lungs; 2. To restore the temperature of the body by the warm bath, friction, &c. 3. Stimuli, external and internal; as enemata of brandy, &c. 4. To evacuate the contents of the stomach.

December 30th, 1818.

MEDICAL AND PHILOSOPHICAL INTELLIGENCE.

VACCINATION IN INDIA.

The Board of the National Vaccine Establishment have lately received from Seringapatam, a curious and important Memoir on Vaccination in that part of India, by the Rev. J. A. Dubois, Missionary in the Mysore, author of a description of the Character, &c. of the People of India, and long a most ardent and zealous promoter of the Vaccine. The following short abstract of this communication cannot but be interesting to the public:—

M. Dubois states, that vaccination was introduced into Indostan in the year 1802, and warmly encouraged by the British government.

The natives, however, displayed a violent aversion to it for several causes.

The first proceeded from a hatred to all innovations.

2dly. A rumour arose, that this was a design of the English to affix an indelible mark on certain persons: and that all males so impressed were, when they grew up, to be forced into the military service, and the females to be concubines.

3dly. The Hindoos had always considered the small-pox as a dispensation from a goddess named Mahry Umma; or rather that the disease was an incarnation of this deity into the person infected. They endeavoured to propitiate this goddess with offerings and sacrifices; but should the patient die, the relatives dare not weep, lest the goddess should overwhelm them with greater calamities.

From these causes vaccination was at first only submitted to by Christians.

Dr. Alex. Anderson, Superintendent Surgeon of the Mysore country, thought proper, with the approbation of the Supreme Council at Madras, to engage the Rev. M. Dubois to exert his influence to overcome the prejudices of the natives.

He accordingly drew up several tracts in the Indian language, and he set out upon a tour to disseminate the Vaccine. Several Indian Christians were selected, and instructed to aid him in his labours.

At first much confusion arose; and several failures occurred by practitioners who had mistaken a spurious disease for the true Vaccine. But this opposition gradually declined, in consequence of the complete success which attended the regular Vaccine. And the natives became persuaded that the goddess Mahry had chosen this mild mode of manifesting herself to her votaries, and might be meritoriously worshipped under this new shape.

M. Dubois solemnly declares, that he and his assistants have vaccinated nearly *one hundred thousand* persons; and that he has not heard of one case proving fatal, *nor a single well authenticated instance, among this large number of the small-pox, occurring after the regular vaccine.*

He mentions, that the vesicles are apt to be broken by the coarse blanket dress which is frequently worn: and the friction often produces an ulcer. These cases were re-vaccinated; but he observes a singularity, that this second operation rarely takes effect, if performed sooner than two or three months after the first.

A circumstance of a very agreeable nature is also noticed—that the vaccine frequently puts a stop to the intermittent fever, which is prevalent in that country. M. Dubois asserts, that he knew instances of its curing quartan fevers, which had continued four or five years.

He compliments highly the Government in India for the measures adopted to extend vaccination; he mentions that Native Vaccinators are appointed in every district, under the superintendence of English medical gentlemen, with liberal salaries; from which he indulges the reasonable expectation, that at no remote period the small-pox will be entirely exterminated in that country; where, in former times, before the introduction of this wonderful preservative, whole districts have been occasionally almost depopulated by the ravages of the small-pox.

This communication of M. Dubois is accompanied by ac-

curate tables, setting forth the several casts and numbers in each province who have undergone vaccination at his hands, making an aggregate of 98,734 persons.—*Lond. Times, Sept.* 18, 1818.

New Vegetable Alkali.

M. M. Pelletier and Caventou have inserted the following note in the Annales de Chimie for July. (The note was read to the Academy 10th August).

Whilst analysing the Vomica Nut, and the Bean of St. Ignace, we extracted from these two seeds the substance to which they owe their action on the animal economy.

This substance is white, crystalline, and very bitter. It crystallizes in the form of quadrangular plates, or in four sided prisms, terminated by an obtuse quadrangular pyramid. It is very slightly soluble in water, but very soluble in alcohol. It is formed like most vegetable substances, of oxygen, hydrogen, and charcoal. It is most distinguished by its alkaline properties; and though like morphium, is essentially different from it. It restores a reddened blue colour, and with acids forms neutral salts, soluble in water, and crystallizable. With weak nitric acid it forms a nitrate, but the concentrated acid acts on and decomposes it; and forms a solution, at first red, but becoming yellow, and yielding oxalic acid. Its acetate is very soluble, the sulphate less so, and crystallizable in rhomboidal plates.

This substance acts on animals in a similar manner to the alcoholic infusion of the nux vomica, but more energetically.

The class of acid vegetable substances is numerous; on the contrary, that of alkaline vegetable substances is confined to morphium. Nevertheless M. Vauquelin has noticed the alkaline properties of a substance obtained by him whilst analysing the *daphne alpina*. The new body will form a another genus in the class, which may become numerous, and which has first been observed by M. Vauquelin. To recal these facts, and designate our substances by a name which will enable us to avoid periphrases, we propose to call it *Vauqueline*. This

name is better than one entirely insignificant, or that indicates properties which may be found in other bodies.—*Journal of Science and the Arts, Oct.* 1818.

Analysis of the Chenopodium Olidum. By MM. Chevalier and Lasseigne.*

We are informed by these chemists that the analysis of this plant offers some very remarkable results, of which the most singular is that it contains a quantity of uncombined ammonia. This is supposed to be the vehicle of the remarkably nauseous odour which it exhales, strongly resembling that of putrid fish.

When the plant is bruised with water, the liquor expressed, and afterwards distilled, we procure a fluid which contains the subcarbonate of ammonia and an oily matter, which gives the fluid a milky appearance. If the expressed juice of the chenopodium be evaporated to the consistence of an extract, it is found to be alkaline; there seems to be acetic acid in it, while its basis is said to be of an albuminous nature. It is stated also to contain a small quantity of the substance which the French call osmazome, a small quantity of an aromatic resin, and a bitter matter soluble both in alcohol and in water, as well as several saline bodies. The following is stated as the result of the analysis, which, however, we may remark, is so complicated and so peculiar, that we should be glad to see it confirmed by further experiments.

The various constituents of the chenopodium olidum are as follows:

1. Subcarbonate of ammonia.
2. Albumen.
3. Osmazome.
4. An aromatic resin.
5. A bitter matter.
6. Nitrate of potash in large quantity.
7. Acetate and phosphate of potash.
8. Tartrate of potash.

* Abridged from Journ. Pharm. iii. (Sept. 1817.)

It is said that 100 pounds of the dried plant produce 18 pounds of ashes, of which $5\frac{1}{2}$ are potash.—*Annals of Philosophy, Sept.* 1818.

On the new metal Cadmium; by M. Gay Lussac.

The new metal resembles tin in its colour, its softness, its ductility, and the sound which it produces when it is bent. It melts and volatilizes at a temperature a little lower than zinc. It preserves its splendour in the air; but by heat it is changed into an orange yellow oxide, which is not volatile, and which is very easily reduced. This oxide does not colour borax; it dissolves very readily in acids, and forms colourless salts, from which it is precipitated white by alkalies. The hydrosulphuric acid precipitates it yellow, like arsenic. Zinc precipitates it in the metallic state. Its specific gravity at 77° (F.) is 8.635.

The metal was discovered in the autumn of the last year, by M. Stromeyer, while he was officially examining the apothecaries' shops at Hanover. M. Hermann, who prepares this oxide on the great scale for medicinal purposes, having been prohibited from selling it, because the presence of arsenic had been supposed to have been detected in it, particularly examined it, and perceived that it contained a new body, which he procured in a separate state, and sent to M. Stromeyer, begging him to verify his conjectures. M. Stromeyer soon found that it had the same properties with the metal which he had just discovered, to which he gives the name of Cadmium.—*Ann. de Chimie et de Phys.*

Letter from Sir Everard Home, *Bart. to* Mr. Brande, *on the Use of Colchicum.*

[From the Journal of Science and the Arts, for October, 1818.]

My Dear Sir,

In the communications which I made to the Royal Society, upon the use of the Vinum Colchici in gout, in the year 1817, I was desirous of putting an end to the quackery respecting that medicine, and to restore it to the place it held in the phar-

macopœia in the time of the Greek physicians; at the same time that I explained an improvement in its preparation, from which I have myself received so much benefit, that I was desirous of giving my fellow sufferers an opportunity of partaking of it.

The Philosophical Transactions being a work set aside for investigations, and recording new facts, not for practical essays, I contented myself with stating what was new, leaving to the practitioners in medicine to put my observations to the test, and diffuse the benefits of this mode of employing the medicine.

I am now induced, by the numerous applications that are made to me for further information on the subject, to send the following observations to you, with a request that you will give them a place in the Journal of the Royal Institution, by which means they will be more generally diffused than through the medium of the Philosophical Transactions.

It is not now necessary to discuss the point, whether there is any difference between Husson's and Wilson's gout medicines and the Vinum Colchici, since they all three cure the gout nearly in the same dose, and the same period of time; proofs of their identity sufficient for any practical purpose.

The facts on which I wish to lay particular stress are the following:

1st. That the Vinum Colchici, when received into the circulation in small doses, produces no deleterious effects, and only brings on the same symptoms as when taken into the stomach, which go off in similar periods of time.

2d. That the deposit which is separated from the infusion by keeping, when given by itself in the dose of a few grains, produces inflammation and ulceration on the coats of the stomach and intestines.

3d. That the infusion removes the paroxysm of gout equally readily, whether given without the deposit, as with it.

4th. The infusion, when clear of the deposit, can be taken in doses of sixty or seventy minims, without producing any disturbance in the stomach, increasing any of the secretions, or bringing on an irregularity of the pulse, effects which commonly occur when that dose is given with the deposit mixed with it.

5th. That sixty minims is the smallest dose that can be depended upon for the complete removal of a paroxysm of gout.

These are the facts which I communicated to the Royal Society, and which are confirmed by an experience of seventeen months upon myself and many other individuals. In some constitutions, a dose of seventy minims may be required, and that dose I know can be taken with safety, as I have taken it myself, and found no sensible effect from it, further than a slight nausea, and that the attack of gout was carried off.

The advantage of taking the Colchicum in this form is, that being milder, the dose necessary for the cure can always be employed without injury to the stomach, even in states of the greatest debility. After an illness, by which I was reduced to so great a degree of weakness as to be unable to walk alone, the gout came violently in my left foot; sixty minims of the Vinum Colchici completely removed it in twenty-four hours, without any disturbance being produced in the stomach, or any other distress whatever. The consequences of a violent fit of the gout under such circumstances, had it been allowed to go on, are not to be calculated.

As sixty minims of Husson's and Wilson's medicine too often produce purging to a violent degree, in all such cases it must be given in reduced doses; and as a smaller does not produce a cure, unless repeated; the stomach, by such repetition, is not only more disturbed, but kept a longer time in that state, and the disease not so effectually removed; and it is known, that in all constitutions liable to gout, whatever deranges the stomach, tends to bring on the paroxysm.

The Vinum Colchici, without the deposit, has another advantage, for as it does not irritate the stomach, it does not require being compounded with other medicines, to defend the stomach from its effects, so that the patient can measure out the dose for himself, which he will take more pains to do accurately, than any other person; and here great accuracy is necessary.

The bulbs of the Colchicum should be collected after the disappearance of the leaves, which happen in July, and before the appearance of the flower, early in September.

EVERARD HOME.

Gas from Turf.

It has been proposed in Holland to substitute turf for coal, as a material, from which to obtain a gas for illumination. The experiments that have been made promise much success; and the apparatus required may be of far simpler construction than those used in the distillation of coal. The products do not require that careful and elaborate process of purification which is necessary for the gas from coal. It is said also, that the light is better. The light may be better, than that from coal gas, badly made, or carelessly used; but it is not likely that, with equal precautions, the first should surpass, or even equal the latter.—*Journal of Science and the Arts, Oct.* 1818.

Pathology of Phthisis; and the Influence of Climate over its Developement. From the French of BROUSSAIS.

M. Bayle divides Phthisis into the tuberculous, calculous, cancerous, and ulcerous; almost all of which species, however, have the tubercle as the basis of the disease. I have observed, and dissected as many cases of this disease as M. Bayle, and have thence come to nearly similar results. I have only met with a single case of ulcerated lungs unaccompanied by tubercles, or some analogous disease of the lymphatic or cellular structure of the organ. Now it is on the tuberculous degeneration that the physician ought particularly to fix his attention. My researches have led me to conclude, that tubercles in the lungs are the result of, and developed by *irritation* in the sanguiferous capillaries of that organ; which irritation is greatly influenced by climate, as the following facts will show.

In 1804, I joined the army of Holland, and there found phthisis so prevalent that, whenever a common catarrh came to be protracted among people of fair complexion and lymphatic temperament, phthisis was the termination. I opened every one who died of the disease, and invariably found tubercles or analogous granulations in the lungs. From this circumstance I was led to infer, that had these unfortunate men remained in their native climates, the greater number of them would have escaped that pulmonic irritation and inflammation which de-

veloped tubercles, and ultimately induced phthisis. This inference was fully realized soon afterwards. The army was marched to Italy, where pulmonary diseases and phthisis almost entirely disappeared; and what is remarkable, the same classes of soldiers who were every day dying of phthisis in Holland, presented, when dead of any other disease in Italy, not a trace of tuberculous degeneration in the lungs. This sufficiently proves, that a cold, moist, and variable climate not only tends to drive the tubercles into suppuration, when once formed; but, by keeping up irritation in the respiratory apparatus, actually has the power of producing the tubercles themselves.—*Medico-Chirurgical Journal, Oct.* 1818.

Taliacotian Art.

Mr. A. Copland Hutchinson, late Surgeon of the Royal Hospital, Deal, and a zealous, able, and active cultivator of operative and medical surgery, has lately performed the nasal operation, according to the plan recommended by Mr. Carpue, and with success. The patient, a female, had lost every part of the nose, even the nasal bones, about eight years ago, from gangrene succeeding an attack of erysipelas. It was not necessary to tie any blood-vessel. On the second day a slight hæmorrhage occurred from the internal surface of the new nose. On the eleventh day from the operation there was external hæmorrhage, to the amount of thirty-three ounces from the right angular artery, but which stopt spontaneously. The blood issued from the very part whence the stitch had been removed, and must have been caused by the ulceration of the coats of the vessel.—*Medico-Chirurgical Journal, Oct.* 1818.

Brief Account of the Imperial Society of Naturalists, at Moscow. By Dr. Lyall, Physician to the Countess Orlof-Tchesminsky.

The plan for forming a depôt for the discoveries in natural history, in the vast empire of Russia, and uniting the friends of this science who wished to lend their assistance for that

purpose, and of publishing in Russia the history of the discoveries made in the empire, was conceived by Professor Gotthelf Fischer, on his arrival at Petersburgh, in the year 1804. It was not till the summer of 1805, however, that a few of the professors of the University of Moscow, and of the literati first assembled, and adopted the regulations proposed by Professor Fischer.

The object of the Society is to occupy itself with natural history, and the relative sciences,—as human and comparative anatomy, chemistry, natural philosophy, rural economy, &c.&c.

The Society consists of members *ordinary* and *honorary*. The ordinary members are divided into *resident* and *non-resident*. Shortly after the association above mentioned took place, his Excellency, the late Mr. Mouraviof, curator of the University, and colleague of the Minister of Public Instruction, being informed that the Society had begun to meet at the house of the director, Professor Fischer, presented its regulations to his Imperial Majesty, the Emperor Alexander, who approved of the plan, and therefore ordered Mr. Mouraviof to testify his satisfaction and approbation to the Professor.

Soon after the institution of the Society, the literati, and particularly the cultivators of natural history, including many of the nobility in Petersburgh and Moscow, and in the other towns and universities in Russia, many of the most distinguished philosophers and naturalists on the continent, chiefly through the extensive acquaintance of the founder and director, were enrolled among its members. Presents were received from all quarters, of books, objects of natural history, and money. The Society was very flourishing; and, by the year 1812, had published four volumes of its Transactions in different languages. All the collections of the Society were deposited in the museum of the University, and, along with that extensive collection, became a common prey to the flames in the memorable year 1812. Among other things were lost some manuscripts, and almost the whole of the impression of the four volumes of the Transactions, and also the second edition of the first volume. Far from being dispirited by this irreparable misfortune, (particularly to Professor Fischer, who had arranged and published a Catalogue, in three volumes, of the

Museum Demidof, and two volumes of the Imperial Museum, now united,) he and the other members re-assembled in 1813, began their proceedings, and since that period have continued all their efforts with unremitting vigour to recover from their losses. The Society has again collected a small museum, which has been considerably augmented this winter; as well as the library, consisting of above 300 volumes. (The library of the University is restored to the amount of 7000 volumes.)

The Society unites here a number of men of great, and others of considerable talents, whose works are too little known in Great Britain. From the change in the state of Europe, however, a more free interchange of scientific publications is to be wished for, and may be expected. The Society intends very soon to reprint the four volumes of its Transactions; and in the mean time the fifth volume is in the press, which forms the first of a new collection. The whole of these volumes are replete with matter important to the natural historian and philosopher.

The number of the Society's honorary and non-resident ordinary members is very great, and includes the most distinguished characters in Europe and America, &c.

The Imperial Society of Naturalists is well known on the continent, and is desirous of becoming better known also in Great Britain, by an interchange of its Transactions for the Transactions of the Natural History and Literary Societies of our island, as well as to receive the donations of objects of natural history, or of books, from its members, or from individuals disposed to assist its views.

Societies wishing to make an exchange of Transactions may address themselves as follows:—"To Professor Gotthelf Fischer, at Moscow." Or, if they will send a copy of their Transactions, they may rely with perfect confidence that Professor Fischer will return in their place the works of the Imperial Society of Naturalists.—*Lond. Med. and Phys. Journ. Sept.* 1818.

OBITUARY.

Died, November 12th, 1818, Doctor John S. Dorsey, Professor of Anatomy in the University of Pennsylvania, in the thirty-fifth year of his age.

DISPENSARIES.

By the statements published, it appears that these institutions have had under their care the number of patients which follows.

PHILADELPHIA DISPENSARY.

From December 1, 1817, to December 1, 1818,			2905
Of these the number Cured is,	- -	2570	
Relieved,	- - -	120	
Dead,	- - -	76	
Irregular or uncertain,	-	41	
Removed,	- -	62	
Remaining under care,	-	36	—2905

NORTHERN DISPENSARY.

From December 1, 1817, to December 1, 1818,			819
Of these the number Cured is,	- - -	648	
Relieved,	- - -	56	
Dead,	- - -	65	
Removed,	- - -	21	
Irregular,	- - -	20	
Remaining under care,	-	14	—819

SOUTHERN DISPENSARY.

From December 1, 1817, to December 1, 1818,			2156
Of these the number Cured is,	- -	1951	
Relieved,	- - -	101	
Dead,	- - -	54	
Removed,	- -	31	
Irregular or uncertain,		7	
Remaining under care,		12	—2156

Making a total of five thousand eight hundred and eighty patients.

VACCINE SOCIETY.

The Physicians of the Society have successfully vaccinated five hundred and eighty-one persons during the last year; their operations being confined to the Northern Liberties and Southwark, since the Councils have undertaken to provide for the vaccination of the poor of the City.

METEOROLOGICAL OBSERVATIONS.

State of the weather at Philadelphia during the last six months of 1818.

July.

Thermometer—Lowest at 8, A. M. 71—3d of the month,
Highest at 3, P. M. 97—12th do.
Mean, 79

Winds variable—mostly north west and south east—fore-part of the month dry—heavy rains the latter part. Heat considerable through the month. Several deaths from the heat and drinking cold water—Ice islands met with, on the 12th, in latitude 45 deg. 10 min.—Cholera infantum prevalent, chiefly among the poor. The city hospital, at some distance from the northern extremity of the city, was taken for the reception of the children of the poor, labouring under summer complaints; and supported by an association chiefly composed of females.

August.

Thermometer—Lowest at 8, A. M. 65—18th day of the month,
Highest at 3, P. M. 86—1st do.
Mean 70

Winds—From north and south east to north and south west—Little rain—Little thunder and lightning this summer—A very dry season—The fruits of the earth have been abundant—Crops of wheat, rye and oats, good—Indian corn remarkably good—All kinds of vegetables excellent—Few cherries this year—Apples moderately good—Peaches, melons, &c. abundant.

September.

Thermometer—Lowest at 8, A. M. 50—29th day of the month,
Highest at 3, P. M. 82—15th do.
Mean, 65

Winds—north and south westerly for the most part—Clear weather—But little rain—Very heavy gale at sea on the 27th—A warm month.

October.

Thermometer—Lowest at 8, A. M. 40—29th day of the month,
Highest at 3, P. M. 73—15th do.
Mean, 65

Winds—Chiefly westerly—Little rain.

November.

Thermometer—Lowest at 8, A. M. 36—20th day of the month,
Highest at 3, P. M. 65—6th do.
Mean, 50

Winds—Much southerly and westerly—Not much rain.

December.

Thermometer—Lowest at 8, A. M. 17—19th day of the month,
Highest at 3, P. M. 52—5th do.
Mean, 30

Winds—North westerly—Snow light on the 2d, also on the 11th and the 18th—Rain the last of the month—A very severe storm of rain and wind on the 6th—Varicella has been common—Small pox, of latter months, scarcely heard of, though varicella has often been mistaken for it—Mild cases of scarlatina continue—Protracted cases of autumnal remittent have been common—Some cases of typhoid pneumonia, which required high cordial treatment—Hospital or jail fever prevalent in situations where many were necessarily placed together—The salutary laws, passed by our legislature to prevent the importation of Europeans in crowded ships, has, probably, prevented further introduction of the disease from that source—No account of any epidemic throughout the United States.

AMERICAN PHILOSOPHICAL SOCIETY.

Officers elected, January 1st, 1819.

President. Robert Patterson.

Vice Presidents. William Tilghman, Peter Stephen Duponceau, Zaccheus Collins.

Secretaries. Thomas C. James, Robert M. Patterson, William P. C. Barton, Robert Walsh, Jun.

Counsellors for three years. William Rawle, Horace Binney, John Sergeant, John Quincy Adams.

Curators. Joseph Cloud, Thomas T. Hewson, Reuben Haines.

Treasurer. John Vaughan.

LIST OF RECENT MEDICAL PUBLICATIONS.

Pharmacopœia in usum Nosocomii a Thoma Guy, Armigero, A. D 1721, fundati, 18mo.

Pharmacopœia Nosocomii Regalis Sancti Thomæ Londinensis.

Observations on the Treatment of Epiphora or Watery Eye, and on the Fistula Lachrymalis; together with Remarks on the Male Catheter, and on the Treatment of Hæmorrhoids. A new edition. To which are added, Observations on the near and distant Sight of different Persons; on the Muscæ volitantes of Nervous persons; and on the Staphyloma, Hydrophthalmia, and Carcinoma of the Eye. By the late James Ware, F. R. S. Edited by his Son, Martin Ware, 8vo.

Report of the Committee of the London Infirmary for curing Diseases of the Eye, occasioned by the Statements contained in a Letter, addressed by Sir William Adams, to the Governors of Greenwich Hospital, 8vo.

Reply to the same, by Sir William Adams, 8vo.

Observations on the properties of the Air Pump Vapour Bath, pointing out their efficacy in the cure of Gout, &c. &c. By M. La Baume, 8vo.

Observations, proving that Dr. Wilson's Tincture for the cure of Gout and Rheumatism is similar, in its nature and effects, to the deleterious preparation, the Eau Medicinale. By W. Henry Williams, M. D. F. L. S. 4to.

The Art of preserving the Feet; or practical Illustrations for the prevention and cure of Corns, Bunnions, &c. By an experienced Chiropodist, 8vo.

An Address to British Females, on the moral management of Pregnancy and Labour. By William Cooke, Surgeon Accoucheur, 8vo.

The Hunterian Oration, delivered before the Royal College of Surgeons, on Saturday Feb. 14, 1818, and published at their request. By Sir David Dundas, Bart. one of the Governors of the College, 4to.

Observations on Stridulous affections of the Bowels, and on some varieties of Spinal Disease: with an appendix of cases. By J. Bradley, M. D. 8vo.

A Succinct Account of the contagious Fever of this Country, as exemplified in the Epidemic now prevailing in London; with the appropriate method of Treatment, as practised in the House of Recovery. By Thomas Bateman, M. D. 8vo.

Surgical Essays. By Astley Cooper, F. R. S. Surgeon to Guy's Hospital; and Benjamin Travers, F. R. S. Surgeon to St. Thomas's Hospital. Part I. 8vo. with Plates.

Elements of Anatomy, designed for the use of Students in the Fine Arts. By James Birch Sharpe, Member of the Royal College of Surgeons, and Student in the Royal Academy. With Plates, royal 8vo.

A Manual of Practical Anatomy, for the use of Students engaged in dissections. By Edward Stanley, Assistant Surgeon, and Demonstrator of Anatomy at St. Bartholomew's Hospital, 1 vol. 12mo.

Inquiry into the Influence of Situation on Pulmonary Consumption, and on the Duration of Life; Illustrated by Statistical Reports. By John G. Mansford, Member of the Royal College of Surgeons, London, 8vo.

Johnson on Gout, 8vo.

Johnson on the Influence of Civic Life, &c. and on the Human Health, 8vo.

Reports of the practice in the Clinical Wards of the Royal Infirmary, Edinburgh; November and December, 1817; January, 1818; May, June, July, 1818. By Andrew Duncan, Jun. M. D. F.R.S.E. &c. &c.